5. REMEDIAL INVESTIGATION/FEASIBILITY STUDY TASKS

The OU 3-14 RI/FS includes a variety of tasks related to scoping, implementation, and decision making under the FFA/CO. Standard RI/FS tasks have been identified by EPA (1988a) to provide consistent reporting and to allow more effective monitoring of RI/FS projects. Proposed activities in each task that will be performed as part of the OU 3-14 RI/FS are discussed below. Specific details of proposed field activities are described in two FSPs, which are attachments to the Work Plan (see Section 5.1.1 below). The following is a review of the specific required elements of the RI/FS.

5.1 Project Plan and Scope

This Work Plan is a part of the project planning and scoping task which involves activities necessary to initiate the OU 3-14 RI/FS (DOE-ID 1999). Project planning is intended to identify the proper sequence of site activities to accomplish the investigation. The following subsections describe the plans developed as part of the planning and scoping process. These plans are prepared in accordance with the EPA document entitled *Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA* (EPA 1988).

5.1.1 Field Sampling Plans and Quality Assurance Project Plan

Two FSPs have been prepared for the OU 3-14 RI/FS activities and are attachments to the Work Plan. The FSP directing Tank Farm soil field sampling activities contains detailed procedures for collecting and analyzing data for the Tank Farm (DOE-ID 2000c). The FSP directing INTEC injection well field sampling activities contains detailed procedures for collecting and analyzing data for the INTEC injection well (DOE-ID 2000b). The procedures also contain the sampling objectives, sample locations and frequency, sample designation, sampling equipment, and sample handling and analysis for the Tank Farm and the INTEC injection well.

The QAPjP (DOE-ID 2000a) includes procedures designed to ensure the integrity of samples collected, the precision and accuracy of the analytical results, and the representativeness and completeness of environmental measurements collected for OU 3-14. The QAPjP is an attachment to this Work Plan. The QAPjP, written in accordance with RI/FS guidance, discusses the following elements:

- INEEL Environmental Restoration description
- Project organization and responsibility, including the names of individuals responsible for ensuring that the environmental data collected are valid
- Quality assurance objectives for data, including required data precision, accuracy, representativeness, completeness, and allowed usage of the data
- Sample custody procedures and documentation
- Calibration procedures and frequency
- Analytical procedures with references to applicable standard operating procedures
- Data reduction, validation, and reporting procedures
- Internal quality control procedure description or reference

- Performance and system audits
- Preventive maintenance procedures
- Specific routine procedures used to assess data accuracy, precision, and completeness
- Corrective action procedures
- Quality assurance reports, including results of system and performance audits and assessments of data accuracy, precision, and completeness.

5.1.2 Health and Safety Plans

Two health and safety plans for the OU 3-14 RI/FS activities are attachments to the Work Plan: one for the Tank Farm soil remedial investigation (BBWI 2000c) and another for the INTEC injection well drilling and sampling project (BBWI 2000b). The health and safety plans, which are both attachments to the Work Plan, establish the procedures and requirements that will be used to eliminate or minimize health and safety risks to persons performing tasks for the OU 3-14 Tank Farm soil remedial investigation and the INTEC injection well drilling and sampling project. The two health and safety plans have been prepared in accordance with the Occupational Safety and Health Administration standard (29 CFR 1910.120/1926.65). The two plans contain information about the hazards involved in performing the work, as well as the specific actions and equipment that will be used to protect persons while working at the task site. Project activities and hazards have been evaluated and are within the INTEC safety authorization basis (DOE 2000, 1999), as defined by the U.S. Department of Energy Order 5480.23, "Nuclear Safety Analysis Reports."

The health and safety plans also contain the safety, health, and radiological hazards assessments for executing all OU 3-14 Tank Farm soil remedial investigation tasks and INTEC injection well drilling and sampling project tasks. The intent of the documents is to identify known hazards and serve as plans for mitigating them.

5.1.3 Waste Management Plan

The Waste Management Plan for the Phase I investigation for OU 3-14 RI/FS is an attachment to the Work Plan (BBWI 2000d). The plan identifies the potential waste types and quantities expected to be generated during the implementation of the RI/FS. The plan addresses the various waste stream sources and classifications and provides for the disposition of the waste streams generated to support the RI/FS. The Waste Management Plan is written in accordance with applicable federal and state regulations. The specific federal and state requirements for waste characterization, storage, and disposition are discussed in the plan.

5.1.4 Data Management Plan

The Data Management Plan for INEEL Environmental Restoration and Deactivation, Decontamination and Dismantlement (D&D&D) Programs (BBWI 2000a) specifies the process for data management of all D&D&D INEEL Environmental Restoration programs.

5.2 Quality Assurance and Quality Control

The Quality Assurance Project Plan for WAGs 1, 2, 3, 4, 5, 6, 7, 10, and Inactive Sites (QAPjP) (DOE-ID 2000a) is an attachment to the Work Plan. This plan pertains to quality assurance (QA) and

quality control for all environmental, geotechnical, geophysical, and radiological testing, analysis, and data review. This section details the field elements of the QAPjP to support field operations during sampling and monitoring.

5.2.1 Project Quality Objectives

The QA objectives specify which measurements must be met to produce acceptable data for a project. The technical and statistical qualities of these measurements must be properly documented. Precision, accuracy, and completeness are quantitative parameters that must be specified for physical or chemical measurements. Representativeness and comparability are qualitative parameters.

The QA objectives for this project will be met through a combination of field and laboratory checks. Field checks will consist of collecting field duplicates, equipment blanks, and field blanks. Laboratory checks consist of initial and continuing calibration samples, laboratory control samples, matrix spikes, and matrix spike duplicates. Laboratory QA is detailed in the QAPjP (DOE-ID 2000a).

5.2.2 Field Precision

Field precision is a measure of the variability not caused by laboratory or analytical methods. The three types of field variability or heterogeneity are spatially within a data population, between individual samples, and within an individual sample. Though the heterogeneity between and within samples can be evaluated using duplicate samples or sample splits, overall field precision will be calculated as the relative percent difference (RPD) between two measurements or the relative standard deviation (RSD) between three or more measurements. The RPD or RSD will be calculated as indicated in the QAPjP for duplicate samples during the data validation process. Precision goals have been established for inorganic Contract Laboratory Program (CLP) methods by the EPA (EPA 1993) and for radiological analyses in the Sample Management Office (SMO) Technical Procedure (TPR)-80, "Radiological Data Validation."

5.2.3 Field Accuracy

Cross-contamination of samples during collection or shipping could yield incorrect analytical results. To assess the occurrence of any cross-contamination events, field blanks will be collected to evaluate any potential impacts. The goal of the sampling program is to eliminate any cross-contamination associated with sample collection or shipping (DOE-ID 2000b, 2000c).

Accuracy of field instrumentation can be maintained by calibrating all instruments used to collect data and cross checking with other independently collected data.

5.2.4 Completeness

Field completeness will be assessed by comparing the number of samples collected to the number of samples planned. Field sampling completeness is affected by factors such as equipment and instrument malfunctions and insufficient sample recovery. Completeness can be assessed following data validation and reduction. The completeness goal for this project is 100% for critical activities and 90% for noncritical activities. Well installations are considered critical activities, while the collection of individual samples is noncritical.

5.2.5 Representativeness

Representativeness is evaluated by assessing the accuracy and precision of the sampling program and expressing the degree to which samples represent actual site conditions. In essence,

representativeness is a qualitative parameter that addresses whether the sampling program was properly designed to meet the DQOs. The representativeness criterion is best satisfied by confirming that sampling locations are selected properly and a sufficient number of samples are collected to meet the requirements stated in the DQOs (see Section 4.4 for a list of the DQOs.)

5.2.6 Comparability

Comparability is a qualitative measure of the confidence with which one data set can be compared to another. These data sets include data generated by different laboratories performing this work, data generated by laboratories in previous studies, data generated by the same laboratory over a period of several years, or data obtained using different sampling techniques or analytical protocols. For field aspects of this program, data comparability will be achieved using standard methods of sample collection and handling. Procedures identified to standardize the sample collection and handling include SOP-11.8, "Groundwater Sampling," and MCP-244, "Chain of Custody, Sample Handling, and Packaging for CERCLA Activities."

Data collection frequency and long-term trends will ensure comparability of monitoring data.

5.2.7 Field Data Reduction

The reduction of field data is an important task to ensure that errors in sample labeling and documentation have not been made. This includes cross referencing the SAP table presented in Appendix A of both FSPs with sample labels, logbooks, and chain of custody forms. Prior to sample shipment to the laboratory, field personnel will ensure that all information is properly documented.

5.2.8 Data Validation

All laboratory-generated data will be validated to Level A. Data validation will be performed in accordance with TPR-79, "Levels of Analytical Method Data Validation." Field-generated data (e.g., matric potential, moisture measurements, and water levels) will be validated through the use of properly calibrated instrumentation, comparing and cross checking data with independently gathered data, and recording data collection activities in a bound field logbook.

5.2.9 Quality Assurance Objectives for Measurement

The QA objectives are specifications that the monitoring and sampling measurements identified in the QAPjP must meet to produce acceptable data for the project. The technical and statistical quality of these measurements must be properly documented. Precision, accuracy, method detection limits, and completeness must be specified for hydraulic and chemical measurements. Specific QA objectives are specified in the QAPjP (DOE-ID 2000a).

5.3 Data Management and Evaluation

Two types of data are being collected under this Work Plan (from the Tank Farm soil and the INTEC injection well investigations), and the two data sets will be managed and evaluated differently. Analytical data that results from the aquifer sampling will be evaluated and validated by the SMO and managed and maintained by the Integrated Environmental Data Management System (IEDMS). Field data (e.g., gamma survey and moisture data) will be electrically collected and initially maintained and managed by the TL for the specific data set. The Hydrogeologic Data Repository (HDR) will supply long-term management for all field data. This section discusses the approach to managing the two data types and evaluation of data.

5.3.1 Data Management

The following discussion presents the various processes associated with managing the data collected as part of the operations and maintenance monitoring. The two types of data discussed above require different management techniques. Management for data collected from the Tank Farm soil and INTEC injection well investigations will follow guidelines specified in the INEEL Environmental Restoration Data Management Plan (BBWI 2000a) and in following subsections.

5.3.2 Laboratory Analytical Data

Analytical data are managed and maintained in the IEDMS. The components that make up IEDMS provide an efficient and accurate means of sample and data tracking.

The IEDMS performs sample tracking throughout all phases of a sampling project beginning with the assignment of unique sample identification numbers using the SAP Application Program. The SAP Application Program produces a SAP table that contains a list of sample identification numbers, sample demographics (e.g., area, location, and depth), and the planned analyses. Once the SAP table is finalized, it is used as input to automatically produce sample labels and tags (with or without barcode identification). In addition, sampling guidance forms can be produced for the field sampling team that provide information such as sampling location, requested analysis, container types, and preservative.

When the analytical data package (sample delivery group) is received, it is logged into the IEDMS journaling system, an integrated subsystem of the sample tracking system, which tracks the SDG from data receipt to the Environmental Restoration Information System (ERIS). Cursory technical reviews on the data packages are performed to assess the completeness and technical compliance with respect to the project's analysis-specific task order statement of work (SOW). Any deficiencies, resubmittal actions, or special instructions to the validator are recorded on the Cursory Subcontractual Compliance Review (CSCR) form using the Laboratory Performance Indicator Management System. This form is sent to the validator with the data package (when required).

Errors in the data package are resolved among all pertinent SMO chemists, the originating laboratory, and the IEDMS staff. Data validity is ensured by the validator through the assignment of method validation flags. The validator generates a limitations and validation report, which gives detailed information on the assignment of data qualifier flags. A copy of the form accompanies the report with the assigned data qualifier flags and any changes to the data, which are entered into the IEDMS database. From this database, a summary table (a result table) is generated. The result table summarizes the sample identification numbers, sample logistics, analytes, and results for each particular type of analysis (e.g., inorganic, radiological, and organic) from the sampling effort.

5.3.3 Field Data

Field data include all data that are nonchemical analytical data generated in support of OU 3-14. This data will be managed in accordance with the requirements specified in the INEEL Environmental Restoration Data Management Plan (BBWI 2000a). Final field data will reside in the HDR for long-term management.

Field data will be analyzed using methods that are appropriate for the data types and specific field conditions. Analysis will include recognized methods and techniques that are used with the specific data types and may include statistical processes.

5.3.4 Data Evaluation

Data evaluation will depend on the type of data (e.g., laboratory or field), and will follow specified procedures.

5.3.5 Laboratory Analytical Data

Analytical data will be validated and analyzed by the SMO in accordance with MCP-227, "Sampling and Analysis Process for CERCLA and D&D Activities."

The validated data will be used to determine concentrations of contaminants in the soil, pore water, and SRPA water.

5.4 Risk Evaluation and Methodology

This section provides a summary of the baseline risk assessment (BRA) and methodology that will be performed for OU 3-14 RI/BRA. This risk evaluation will use the OU 3-13 RI/BRA risk approach; however, modifications or changes may be instituted, as dictated by unique situations that may exist at OU 3-14.

The purpose of the BRA is to determine potential adverse human health effects posed by contaminants of potential concern (COPCs) identified at OU 3-14 under the No Action alternative (DOE-ID 1991). Typically, BRAs are composed of two parts: a human health evaluation and an ecological evaluation. The OU 3-14 BRA will focus solely on the human health evaluation because an ecological evaluation has previously been performed for the OU 3-13 Comprehensive RI/FS (DOE-ID 1997). The results of the ecological evaluation suggest that a significant decline in the health or diversity of INEEL-wide ecological communities is considered very low.

The procedures used in the BRA are consistent with those described in the following guidance documents:

- Risk Assessment Guidance For Superfund, Volume I: Human Health Evaluation Manual (RAGS) (EPA 1989a)
- Supplemental Guidance for Superfund Risk Assessments in Region 10 (EPA 1991)
- Guidance Protocol for the Performance of Cumulative Risk Assessments at the INEL (LMITCO 1995).

The OU 3-14 BRA will be similar in format to the OU 3-13 BRA (DOE-ID 1997) and will draw from the results of that evaluation. As a result of the large uncertainty in the Tank Farm contaminant inventories and the groundwater flow and transport model parameters used in the OU 3-13 RI/FS, Tank Farm contaminant inventories will be evaluated as part of the OU 3-14 RI/FS. The evaluation will be achieved primarily through additional sample collection, the goals of which are to reduce uncertainty related to the exposure point concentration and refine understanding of contaminant concentrations that will potentially migrate to the SRPA. In addition, the risk assessment will calculate the cumulative groundwater risk for the INTEC Tank Farm area to update the OU 3-13 risk calculations.

The human health BRA for OU 3-14 will include the following components:

- **Conceptual Site Model**. The conceptual site model for OU 3-14 will provide a current understanding of the sources of contamination, physical setting, current and future land use, and beneficial use of groundwater to identify potentially complete exposure pathways. Information generated during the RI has been incorporated into this conceptual site model to identify potential exposure scenarios.

- **Data Evaluation and Contaminants of Potential Concern (COPCs).** This section presents a summary of the data collected for OU 3-13 and OU 3-14, and a description of the screening evaluation, for the purpose of identification and selection of contaminants at the site that are of greatest potential health concern.

- **Exposure Assessment.** An exposure assessment is conducted to estimate the magnitude of potential human exposures, the frequency and duration of these exposures, and the pathways through which humans are potentially exposed to COPCs detected at the site. The exposure assessment involves evaluating chemical releases from the site, identifying potentially exposed populations and pathways of exposure, estimating exposure point concentrations for specific pathways, and estimating chemical intake rates in humans.

- **Toxicity Assessment.** The toxicity assessment will involve the characterization of the toxicological properties and health effects of COPCs with special emphasis on defining their dose-response relationships. From these dose-response relationships, toxicity values are derived that can be used to evaluate the potential occurrence of adverse health effects at different levels of exposure.

- **Risk Characterization.** This section will combine the results of the exposure assessment and toxicity assessment to characterize risk to human health, both in numerical expressions and qualitative statements.

- **Uncertainty Analysis.** The uncertainties in the risk assessment process and how these uncertainties influence the characterization of health risks will be qualitatively analyzed.

5.5 OU 3-14 Additional Investigations

The following investigations are in addition to the field work discussed in Section 4. These investigations will be conducted for the Tank Farm soil, INTEC injection well, and groundwater for sites and contaminants retained after the screening process for the OU 3-14 COPCs. The results of the investigations will be used to support the BRA and evaluation of remedial alternatives.

5.5.1 Contaminant Transport Study

The contaminant transport study data requirements and objectives will be negotiated during scoping meetings with the agencies. A draft contaminant transport study work plan will be developed and reviewed by DOE-ID, EPA, and IDEQ.

The anticipated scope of a contaminant transport study for the Tank Farm soil is to experimentally determine site-specific adsorption and desorption coefficients for the OU 3-14 Tank Farm soil COPCs on Tank Farm geological materials. The contaminant transport study provides the background and technical approach for quantifying the sorptive behavior of the COPCs in the INTEC OU 3-14 Tank Farm soil.

Three pieces of information are needed for Tank Farm soil. These are (1) the release of contaminants from sources in the Tank Farm soil, (2) the vertical profile of retardation capabilities, and

(3) the spatial variability of retardation capabilities. Source-release information will be gathered on Tank Farm soil by evaluating K_ds, assessing the neutralization capability of the soil, and leach tests. Decision on where and which depths samples will be collected will be determined as more information is gleaned from characterization of the Tank Farm soil. The contaminant transport data will be used in the fate and transport model to assess remedial alternatives.

5.5.2 Treatability Studies

The treatability study data requirements and objectives will be negotiated during scoping meetings with the agencies. If a treatability study work plan is developed, it would be reviewed by the DOE-ID, EPA and IDEQ.

Tank Farm treatability studies may be necessary in two areas: (1) the encapsulation and immobilization of OU 3-14 COPCs, and (2) removal of specific hot spots, ex situ treatment (if needed), and disposal. The encapsulation and immobilization of OU 3-14 COPCs could entail treatability studies using polymer injection, reactive barriers, or an engineered cap.

INTEC injection well treatability studies may be performed if deemed necessary. It is anticipated that they would be predicated on the depth of the source terms of interest. The efforts directed toward treatability studies would include (1) grout/polymer injection, (2) adsorption, and (3) investigation of the efficacy of plume interception by pump and treat.

Contaminants of potential concern for sites CPP-61, CPP-81, and CPP-82 have not yet been determined. Once a determination has been made, treatability studies may be necessary to address these COPCs.

5.5.3 Risk Assessment and Groundwater Strategy Report

The Risk Assessment and Groundwater Strategy Report will be prepared to identify the conceptual site model that will be used to address the physical and contaminant releases from the Tank Farm and the INTEC injection well. This report will identify the approach for the risk assessment and exposure modeling. In addition, the groundwater strategy will be developed to delineate the computer code and input requirements for the SRPA under INTEC.

5.5.4 Baseline Risk Assessment (scheduled)

A BRA is currently intended for the INTEC injection well portion of the project only because the Tank Farm soil is assumed to pose an unacceptable risk. If a risk assessment is necessary for the Tank Farm soil, then the level of assessment will be negotiated with DOE-ID, EPA, and IDEQ. A technical paper will be developed and presented to DOE-ID, EPA, and IDEQ.

5.6 Remedial Alternatives Screening for OU 3-14

The FS will address residual risk or regulatory needs at the Tank Farm soil, INTEC injection well, and the additional sites assigned from OU 3-13 sites CPP-61, CPP-81, and CPP-82. The FS will document the procedure to develop, screen, and analyze remedial alternatives. A site-specific statement of purpose for a response (i.e., an evaluation of remedial alternatives through the FS process) will be prepared based on the results of the RI and the cumulative and comprehensive risk assessment. This statement will identify the actual or potential contamination sources and exposure pathways to be addressed by the remedial action alternatives. The following section addresses this for all sites. Where

there are differences between the sites in the remedial alternative screening, these differences will be noted in the text.

5.6.1 Remedial Action Objectives and General Response Actions

Remedial action objectives are media- and OU-specific for protecting human health and the environment. The RAOs will be based on the results of an initial analysis of ARARs and a thorough evaluation of risks as indicated in the BRA. The RAOs will focus on protecting human health and the environment and will address the need to achieve specific contaminant concentrations or eliminate contaminant migration pathways.

General response actions will be developed to satisfy the site-specific RAOs. General response actions for OU 3-14 may include no action, institutional controls, containment, in situ treatment, ex situ treatment, excavation or disposal on the INEEL site, and excavation or disposal off the INEEL site. Like RAOs, general response actions are media-specific. General response actions that might be used at a site are initially defined during scoping and are refined throughout the comprehensive RI/FS as site conditions become better understood and action-specific ARARs are identified. A range of remedial alternatives will eventually be identified and developed to satisfy the established RAOs.

For the INTEC injection well, the FS, will address residual risk or regulatory needs. The FS will document the procedure to develop, screen, and analyze remedial alternatives. A site-specific statement of purpose for a response (i.e., an evaluation of remedial alternatives through the FS process) will be prepared based on the results of the RI and the cumulative and comprehensive risk assessment. This statement will identify the actual or potential contamination sources and exposure pathways to be addressed by the remedial action alternatives.

5.6.2 Preliminary Remedial Process Options

5.6.2.1 Appropriate Process Options. The FS process will include a screening of appropriate process options available to address residual contamination that poses unacceptable risks at OU 3-14. Process options can be categorized into various technology types. The process options are grouped into the following general response actions.

For Tank Farm soil, if necessary, the additional soil sites from OU 3-13, and sites CPP-61, CPP-81, and CPP-82:

- ***Institutional Controls***—Institutional controls include actions that prevent or limit access to contaminated areas through the period of time that DOE controls the INTEC facility. Institutional controls also may extend beyond the period in which DOE maintains control at INTEC; however, another agency such as the Bureau of Land Management (BLM) may take over the administration of institutional controls. Institutional controls may include monitoring, access restriction (fences or other barriers, signs, and security), soil moisture management, administrative procedures, and deed restrictions. Past INEEL remedial action decisions that employ only institutional controls are referred to as limited action decisions.

- ***Containment***—Containment, often the preferred method of dealing with sites where treatment is impractical, may reduce the risk to acceptable levels without removing contaminants from the site. Containment includes process options such as capping, grout curtains, or sheet pilings designed to isolate contaminants and prevent their migration beyond the containment boundaries. Experience and data collected from other contaminated

sites will help guide the development and evaluation of alternatives that include the general response action of containment.

- ***In Situ Treatment***—In situ treatment process options include treatment technologies such as solidification. The in situ treatment options would be integrated into alternatives that focus on reducing the toxicity, mobility, or volume of contaminants without removal.

- ***Ex Situ Treatment***—Ex situ treatment process options require removing contaminants from their current location and treating them to reduce their toxicity, mobility, or volume. Ex situ treatment options could include processes such as soil washing, physical separation, and ex-situ vitrification. Treated materials can either be returned to their original location or transported to a new location.

- ***Excavation/Disposal On- or Off-Site***—This general response action includes process options for removing contaminated media in the Tank Farm and sites CPP-61, CPP-81, and CPP-82, if necessary. Once removed, materials would be packaged for disposal in an engineered facility located either on or off the INEEL Site, possibly after the appropriate ex situ treatment.

For the INTEC injection well:

- ***Institutional Controls***—Institutional controls include actions that prevent or limit access to contaminated areas through the period of time that DOE controls the INTEC facility. Institutional controls also may extend beyond the period in which DOE maintains control of INTEC; however, another agency such as the BLM, may take over the administration of institutional controls. Institutional controls may include monitoring, aquifer recategorization, access restriction (fences or other barriers, signs, and security), administrative procedures, and deed restrictions. Past INEEL remedial action decisions that employ only institutional controls are referred to as limited action decisions.

- ***Containment***—Containment, often the preferred method of dealing with sites where treatment is impractical, may reduce the risk to acceptable levels without removing contaminants from the site. Containment includes process options such as capping, migration barriers designed to isolate contaminants and prevent their migration into the SRPA, vertical barriers, and chemical or physical treatments such as adsorption or solidification. Experience and data collected from other contaminated sites will help guide the development and evaluation of alternatives that include the general response action of containment.

- ***In Situ Treatment***—In situ treatment process options include treatment technologies such as barriers and physical and chemical treatments. The in situ treatment options would be integrated into alternatives that focus on reducing the toxicity, mobility, or volume of contaminants without removal.

- ***Ex Situ Treatment***—Ex situ treatment process options require removing contaminants from their current location and treating them to reduce their toxicity, mobility, or volume. Ex situ treatment options could include processes such as a physical or chemical treatment such as reverse osmosis or ion exchange, evaporation, and ex situ solidification. Treated materials can either be returned to their original location or transported to a new location.

- ***Groundwater Removal for Disposal On or Off the INEEL Site***—This general response action includes process options for removing (pumping) contaminated groundwater. Once removed and treated, materials would be packaged for disposal in an engineered facility located either on or off the INEEL Site.

The general response action of no action would be considered a baseline against which developed alternatives would be compared. No action at the INEEL generally includes the institutional action of long-term monitoring.

5.6.2.2 Screening of Process Options. The master list of preliminary process options supporting the selected general response actions for OU 3-14 will be screened to eliminate clearly unsuitable process options. This process option screening will be based on effectiveness, implementability, and cost.

Specific process options will be evaluated with regard to their effectiveness in achieving the RAOs. This evaluation will focus on the following:

- The potential effectiveness of process options in handling the estimated volumes of contaminants in specific environmental media and meeting the remediation goals identified in the RAOs

- The potential impacts to human health and the environment during the construction and implementation phase

- The reliability of the process with respect to remediation of the contaminants and site conditions.

Implementability encompasses both the technical and administrative feasibility of implementing a process option. Technical implementability is used as an initial screen of process options to eliminate those that are clearly ineffective or unworkable at a site. Although administrative aspects of implementability are evaluated primarily during the detailed analysis of alternatives, these factors, such as the availability of treatment, storage, and disposal services, including capacity, and the availability of necessary equipment and skilled workers to implement the process option, are considered as well.

Cost is a factor in the screening of process options. Relative capital and operating and maintenance costs are used rather than detailed estimates. At this stage of process option screening, cost analysis is based on engineering judgment and past experience, and the cost (high, low, or medium) of each process is evaluated relative to other process options of the same technology type.

Elimination of any process option during screening will be fully documented in the final FS report.

5.6.3 Development of Alternatives

Alternatives will be developed that protect human health and the environment by eliminating, reducing, or controlling risks posed by the site. General response actions and the process options chosen to represent the various technology types for each medium are combined to form alternatives for the Tank Farm soil as a whole. Often, more than one general response action will be applied to each medium.

5.6.4 Threshold and Balancing Criteria

Alternatives will be screened on the basis of the short- and long-term aspects of their effectiveness, implementability, and cost. To the extent practical, a wide range of alternatives will be preserved.

5.6.4.1 Effectiveness. A key aspect of the screening evaluation is the effectiveness of each alternative in protecting human health and the environment. Each alternative developed will be evaluated for effectiveness in providing protection and reduction of toxicity, mobility, or volume. Both short- and long-term components of effectiveness will be evaluated. Short-term effectiveness refers to the period until the remedial action is complete. Long-term effectiveness refers to controls that may be required to manage the risk posed by treatment residuals, untreated water, and any contamination left at the site. Reduction of toxicity, mobility, or volume refers to changes in one or more characteristics of the radiological or chemical compounds or contaminated media resulting from a treatment that decreases the inherent threats or risks associated with the contamination.

5.6.4.2 Implementability. Implementability is a measure of both the technical and administrative feasibility of constructing, operating, and maintaining a remedial action alternative. Technical feasibility is the ability to construct, reliably operate, and meet technology-specific regulations for process options. Administrative feasibility refers to the ability to obtain approvals from DOE-ID, EPA, and IDEQ; availability of treatment, storage, and disposal services (and capacity); and the requirements for and availability of specific equipment and technical specialists.

5.6.4.3 Cost. A cost estimate for each alternative will be prepared. The estimate of capital and operations and maintenance costs will be considered, where appropriate, during the screening of alternatives. The evaluation will include those operating and maintenance costs that will be incurred for as long as necessary, even after the initial remedial action is complete. In addition, potential future remedial action costs will be considered during alternative screening to the extent that they can be defined. Present worth analyses will be used during alternative screening to evaluate expenditures that occur over different time periods.

5.6.4.4 Selection of Alternatives for Detailed Analysis. The list of candidate alternatives will be narrowed to those that reduce risk to the public and the environment and are technically feasible. The identified process options will then be evaluated and screened based on effectiveness, implementability, and cost.

The results of the screening process will be reviewed by DOE, EPA, and the IDEQ. This review will result in an agreed-upon set of alternatives that will undergo detailed analysis.

5.7 Detailed Analysis of Alternatives for OU 3-14

A range of remedial alternatives that represent distinct, viable approaches to addressing residual risks of the Tank Farm soil will be developed. A no action alternative also will be developed and will serve as a baseline against which the action alternatives are compared. Alternatives remaining after the screening process will be thoroughly analyzed. The detailed analysis will consist of an assessment of individual alternatives compared to the nine evaluation criteria discussed below. A comparative analysis will then focus on the relative performance of each alternative against the criteria.

The nine evaluation criteria (discussed below) are categorized into three groups: threshold criteria, primary balancing criteria, and modifying criteria. The first two criteria, overall protection of human health and the environment and compliance with ARARs, are the threshold criteria that must be met in order for an alternative to be eligible for selection. The third to seventh criteria are the primary balancing

criteria that compare the relative tradeoffs among the alternatives. The last two criteria are the modifying criteria and will be addressed in the ROD following public comment on the comprehensive RI/FS report and proposed plan.

5.7.1 Overall Protection of Human Health and the Environment

Alternatives will be assessed to determine whether they can adequately protect human health and the environment by eliminating, reducing, or controlling risks.

5.7.2 Compliance with ARARs

The alternatives will be assessed to determine whether they meet ARARs. The FS will acknowledge those alternatives that would require an ARARs waiver under 40 CFR 300.430 (f)(1)(ii)(C) to be the proposed remedial alternative.

5.7.3 Long-Term Effectiveness and Permanence

Alternatives will be assessed to determine the long-term effectiveness and permanence that they afford, along with the degree of certainty that each alternative will prove successful. Factors affecting long-term permanence and effectiveness include the following:

- A residual risk assessment for each alternative to evaluate the cumulative effects of both long-term and short-term risks associated with the implementation of the remedial alternative
- The type, degree, and adequacy of long-term management required including engineering controls, institutional controls, monitoring, operation, and maintenance
- Long-term reliability of controls, including uncertainties associated with land disposal of untreated hazardous waste and treatment residuals
- The potential need for replacement of the remedy.

5.7.4 Reduction of Toxicity, Mobility, and Volume

The degree to which alternatives employ treatments that reduce toxicity, mobility, or volume will be assessed. Factors affecting toxicity, mobility, or volume that will be considered include the following:

- The type of process options employed in an alternative and what materials they will treat
- Amount of contamination that will be destroyed or treated
- The degree of expected reduction in toxicity, mobility, or volume
- The degree to which the treatment is irreversible
- Residuals that will remain and by-products that will be created following treatment.

5.7.5 Short-Term Effectiveness

Assessment of short-term effectiveness of alternatives will consider the following:

- Possible short-term risks to the community during implementation of an alternative
- Potential impacts on workers conducting remedial actions and the effectiveness and reliability of protective measures
- Potential environmental impacts of remedial actions and the effectiveness and reliability of mitigative measures during implementation
- The time until protection is achieved.

5.7.6 Implementability

Assessment of the ease or difficulty of implementing the alternatives will consider the following:

- Degree of difficulty or uncertainty associated with construction and operation of the technology
- Expected operational reliability and the ability to undertake additional action, if required
- Ability and time required to obtain necessary approvals and permits from the agencies
- Availability of necessary equipment and specialists
- Available capacity and location of needed treatment, storage, and disposal services
- Timing of the availability of prospective technologies that may be under development.

5.7.7 Costs

Costs will be estimated, including capital and operation and maintenance costs based on present value. The costs will be developed with an accuracy of +50 to -30% (EPA 1988a), unless otherwise stated in the FS.

5.7.8 State of Idaho Acceptance

Concerns identified by the IDEQ during its reviews of the comprehensive RI/FS Work Plan, RI/FS, proposed plan, and ROD will be assessed. The reviews will consider the proposed use of waivers, the selection process used to evaluate alternatives, and other actions. Comments received from the State of Idaho will be incorporated into the remedial evaluation.

5.7.9 Community Acceptance

Community response to the alternatives will be assessed. Similar to the IDEQ acceptance criteria, complete assessment will not be possible until comments on the proposed action have been received. The process for public involvement is discussed in detail in Section 5.12.2.

5.8 Remedial Investigation/Feasibility Study Report

A draft RI/FS report will summarize previous field investigation results, treatability studies, ARAR analyses, comprehensive and cumulative risk assessments, and remedial alternatives. The RI/FS report is defined as a primary document in the FFA/CO Action Plan (DOE-ID 1991). The RI/FS report will serve

as a basis for consolidating information that has been obtained and will document the rationale used to screen and develop remedial actions for OU 3-14. The RI/FS report will contain information that the decision makers need to select an appropriate remedy for OU 3-14. The elements of the RI/FS report will follow the basic format presented in EPA 1989c. Supporting data, information, and calculations will be included in the appendices to the report. The document will be revised in accordance with comments received and submitted to DOE-ID, EPA, and IDEQ for review. Written comments on the draft RI/FS from EPA and IDEQ will be addressed in the final RI/FS report.

5.9 Proposed Plan and Record of Decision

The OU 3-14 RI/FS activities include preparation of a proposed plan and ROD. The proposed plan, a secondary document, as defined in the FFA/CO Action Plan (DOE-ID 1991), will be prepared to facilitate public participation in the remedy selection process. After the RI/FS report is complete, the proposed plan for OU 3-14 will be presented to the public. This plan will outline the proposed remediation plans developed and supported by the RI/FS activities. The proposed plan will be written in accordance with the format recommended in EPA guidance (EPA 1989b). Any issues raised during the public comment period will be addressed in the ROD responsiveness summary.

Public involvement in the decision process is vital to the successful implementation of a remedial alternative. Public participation in the decision process will be conducted according to the Community Relations Plan (DOE-ID 1995) and EPA guidance (EPA 1989b).

After DOE-ID, EPA, IDEQ, and public comments on the RI/FS report and proposed plan are received, a remedy for OU 3-14 will be selected and documented in the ROD, which will be signed by the parties specified in the FFA/CO. The ROD will be prepared in accordance with EPA guidance (EPA 1989b). The ROD will serve the following four functions:

- Certify that the remedy selection process was carried out in accordance with the FFA/CO (DOE-ID 1991) and, to the extent practicable, with the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) (40 CFR 300)
- Describe the technical parameters of the remedy, specifying the treatment, engineering, and institutional components as well as remediation goals
- Provide the public with a consolidated source of information about the site and the chosen remedy, including the rationale behind the selection
- Delineate post-ROD activities such as scoping the remediation, remedial action plan development, and monitoring.

5.10 Preliminary Remedial Action Alternatives

Preliminary remedial action alternatives are based on site conditions, previous experience, engineering judgement, and guidelines set forth in the NCP. In general, a remedial action alternative should protect human health and the environment. The overall objective of an alternative is to mitigate the potential adverse effects of OU 3-14 contaminants. Most of the remedial action alternative applicable to OU 3-14 sites, including the no action alternative, can and will include groundwater monitoring.

Preliminary remedial action alternatives considered for OU 3-14 sites include the following:

- *No action*

- *No action with groundwater monitoring*—Monitoring is used to detect potential future releases to SRPA

- *Access restriction*—This is intended to prevent or reduce exposure to onsite contamination. This may be accomplished through fencing to physically limit access to sites and through deed restrictions to notify any potential purchase of property with potential risks

- *Containment*—Containment refers to technologies that isolate contaminants and mitigate offsite migration by using engineering controls. A cover or cap that may consist of a native soil cover, a single barrier, or a composite barrier plus a feasible membrane liner may be considered. This alternative also could include encapsulation or grouting (e.g., a bentonite slurry or polymer injection) of contaminated areas

- *Hotspot removal followed by treatment or disposal*—Removal of contaminated soil that represents discrete accessible locations within OU 3-14 where a waste type or mixture of waste presents a potential threat to human health or the environment

- *Surface controls*—Surface control technologies are designed to control and direct site runoff and to prevent off-site surface water from running onto the site. Examples of surface controls include grading, which modifies topography to promote positive drainage and control the flow of surface water, and establishing vegetation to stabilize the soil surface and promote evapotranspiration. Interim action under the OU 3-13 ROD for the Tank Farm includes surface water runon diversion channels, grading, and surface sealing to divert 80% of the precipitation.

- *Leachate collection, monitoring, and treatment*—Leachate collection is used to minimize or eliminate the migration of leachate to groundwater

- *Groundwater pumping and treatment*—Groundwater is pumped to the surface for remediation and is returned to the aquifer. Interim action under the OU 3-13 ROD for the SRPA includes contingent active pump and treat remediation if the current groundwater concentrations will result in aquifer concentrations above MCLs after 2095, as predicted by the groundwater model. Furthermore, the area of the aquifer that is predicted to have concentrations above MCLs in 2095 must be able to sustain production above 0.5 gpm and be located outside the current INTEC security fence before remediation is required.

5.11 Identification of Potentially Applicable or Relevant and Appropriate Requirements

This section initially identifies ARARs for OU 3-14. The list represents a preliminary identification of ARARs based on site characteristics and knowledge of contaminants. Further identification and definition of ARARs will be conducted through a phased process as remedial action alternatives appropriate for the site are identified and will be presented in the OU 3-14 RI/FS, Proposed Plan, and ROD.

The CERCLA, as amended by the Superfund Amendments and Reauthorization Act of 1986 (42 USC § 9601), requires the selection of remedial actions that satisfy two threshold criteria: overall protection of human health and the environment and compliance with ARARs. Remedies must address

substantive standards, requirements, criteria, or limitations under any federal environmental law and any promulgated state environmental requirements, standards, criteria, or limitations that are more stringent than corresponding federal standards. In addition, the importance of nonpromulgated criteria or other advisory information to be considered is formally recognized in the NCP in the development of remediation goals or cleanup levels. This information is labeled to-be-considered (TBC) criteria.

The EPA has specified that potential ARARs identified for a site should be considered at several points in the remediation planning process (52 FR 32496). These points include the following:

- During scoping of the RI/FS, chemical- and location-specific ARARs may be identified on a preliminary basis.
- During the site characterization phase of the RI, when the baseline public health evaluation is conducted to assess risk at a given site, chemical-specific ARARs and TBC criteria are identified more comprehensively and are used to help identify preliminary remedial action objectives (RAOs).
- During the FS, location- and action-specific ARARs are identified for each alternative evaluated in the detailed analysis of alternatives. Changes in regulatory requirements can be assessed though the development of the ROD.

The ARAR identification process for the OU 3-14 comprehensive investigation consists of evaluating sites against the CERCLA *Compliance with Other Laws* manual (EPA 1988b) to identify preliminary chemical- and location-specific ARARs. Generally, action-specific ARARs are identified in the FS, as appropriate for the remedial alternatives under consideration. However, if an action-specific ARAR contains generic requirements that are deemed appropriate in most remedial scenarios likely to be employed at OU 3-14, it is identified below.

5.11.1 Preliminary ARARs Identification

Sections 5.11.1.1 through 5.11.2 discuss the preliminary list of ARARs that may apply to OU 3-14. Section 5.11.2 presents a preliminary list of TBC criteria that may apply to remedial actions under OU 3-14. Tables 5.1 and 5.2 present preliminary lists of potential ARARs and TBC guidance, respectively.

5.11.1.1 Action-Specific ARARs. Action-specific ARARs are technology- or activity-based requirements for actions taken at a site. Action-specific ARARs generally do not guide the development of remedial action alternatives, but they indicate how the selected remedy must be implemented. Action-specific ARARs will be refined following alternative development.

Principle action-specific ARARs relate to radioactive material and well construction requirement standards, the management of stormwater and fugitive dust emissions, and management and disposal of radioactive or hazardous waste or residuals. Dust suppression methods are used to control fugitive dust emissions.

5.11.1.2 Chemical-Specific ARARs. Chemical-specific ARARs are usually health- or risk-based values that establish the acceptable amounts or concentrations of a chemical that may be found in or discharged to the ambient environment.

Table 5-1. Preliminary list of ARARs for Tank Farm soil and groundwater.

Statute or Requirement	Citation	Type of Requirement	Comments
Idaho Fugitive Dust Emissions	IDAPA 16.01.01.650 et seq.	A	Applies to earthmoving and well drilling activities.
Rules for the Control of Air Pollution in Idaho (Air Toxics rules)	IDAPA 16.01.01.161, 16.01.01.585 and 16.01.01.586	A	Applies to earthmoving, well drilling activities, and on-Site treatment.
National Emission Standards for Hazardous Air Pollutants (NESHAPS) Radionuclides and other than radon-222 and radon-220 at DOE Facilities	40 CFR 61.92 40 CFR 61.93	A	Applies to earthmoving, well drilling activities, and on-Site treatment.
National Ambient Air Quality Standards for Specific Air Pollutants—Primary and Secondary PM-10 Standards	IDAPA 16.01.01.575 .577 40 CFR 50.6	A	Applies during on-Site treatment that has air emissions.
Site Security	IDAPA 16.01.05.008 (40 CFR 264.14)	A	Applies to institutional controls and on-Site treatment.
Disposal or decontamination of equipment, structures, and soil	IDAPA 16.01.05.008 40 CFR 264.114	A	Applies to drilling, sampling, or during remediation activities.
Remediation waste staging piles	IDAPA 16.01.05.008 (40 CFR 264.554)	A	Applies to drill cuttings that may be generated during monitoring well installation and any remediation involving excavation and on-Site storage.
Hazardous Waste Management Act	IDAPA 16.01.05.004 and .005 (40 CFR 260.10 and 261.2)	A	"Definition of Solid Waste"
	IDAPA 16.01.05.006 (40 CFR 262.11)	A	"Hazardous Waste Determination" Hazardous waste determination applies to all waste generated during remediation activities.
	IDAPA 16.01.05.008 (40 CFR 246)	A	"Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal facilities"
Closure and post-closure care	IDAPA 16.01.05.008 [40 CFR 264.310(b)(5)]	A	Closure requirements apply if there is any RCRA waste left on-Site.
Treatment Standards for Miscellaneous Units	IDAPA 16.01.05.008 (40 CFR 264.601)	A	Applies to on-Site treatment of RCRA waste.
Land Disposal Restrictions	IDAPA 16.01.05.011 40 CFR 268.40 40 CFR 268.45 40 CFR 268.48 40 CFR 268.4900	A	Soils determined to be RCRA hazardous Waste must meet land disposal restriction (LDRs) before disposal.
Storm water discharges during construction	40 CFR 122.26	A	Applies during all construction activities.
Idaho Rules for the Construction and use	IDAPA 37.03.09.025	A	Applies to SRPA monitoring.

Statute or Requirement	Citation	Type of Requirement	Comments
of Injection Wells			
Groundwater quality standards	IDAPA 16.01.11.200(a) (40 CFR 141)	C	Applies to groundwater remediation.
National Historic Preservation Act	16 USC 470 et seq.	L	Site is surveyed for cultural and archaeological resources.

A = Action; C= Chemical; L = Location

Table 5-2. Preliminary list of to-be-considered criteria for OU 3-14.

To-Be-Considered Criteria	Title
Contractor Requirements Document 420.1	Facility Safety
DOE Order 5480.23	Nuclear Safety Analysis Reports
DOE Order 5480.4	Environmental Protection, Safety, and Health Protection Standards
DOE Order 440.1	Worker Protection Management for DOE Federal and Contractor Employees
DOE Order 435.1	Radioactive Waste Management
DOE Order 231.1	Environment, Safety and Health Reporting
DOE Order 5400.5	Radiation Protection of the Public and Environment

Within the context of the effectiveness evaluation, chemical-specific ARARs assume significance, as each alternative is evaluated for its effectiveness in protecting human health and the environment.

The ability to protect human health and the environment is a threshold criterion that CERCLA remedial actions must meet (EPA 1998a) to be considered a preferred remedy. The EPA considers a remedy protective if it "adequately eliminates, reduces, or controls all current and potential risks posed through each [exposure] pathway [at] the site." In accomplishing protectiveness, a remediation alternative must meet or exceed ARARs or other risk-based levels established when ARARs do not exist or are waived.

In both the NCP and the CERCLA *Compliance With Other Laws Manual* (EPA 1988b), EPA specifies that when ARARs are not available for a given chemical or when such chemical-specific ARARs are not sufficient to be protective, risk-based levels should be identified or developed to ensure that a remedy is protective. Both carcinogenic and noncarcinogenic effects are considered in determining risk-based levels and evaluating protectiveness. For carcinogenic effects, the health advisory or risk-based levels are selected so that the total lifetime risk to the exposed population of all contaminants falls within the acceptable range of 10^{-4} to 10^{-6}. The 10^{-6} risk level is specified by EPA as a point of departure for levels of exposure, as determined by EPA reference doses, taking into account the effects of other contaminants at the site.

Therefore, chemical-specific ARARs serve three primary purposes:

- To identify requirements that must be met as a minimum by a selected remedial action alternative (unless a waiver is obtained)
- To provide a basis for establishing appropriate cleanup levels
- To identify chemical-specific ARARs for contaminants at OU 3-14. National emission Standards for Hazardous Air Pollutants (NESHAP) (40 CFR 61.92) established emission limits for radionuclides other than radon form DOE facilities. The standard limits an entire facility's emissions to ambient air to an amount that would not cause any member of the public to receive an effective dose equivalent of 10 millirem (mrem) per year. These requirements are considered potentially applicable to possible remedial actions that may be undertaken at OU 3-14.

The State of Idaho's rule governing new sources of toxic air pollutants, located in IDAPA 16.01.01585 and 16.01.01586, is a potential ARAR if a remedial option generates regulated toxic air pollutants. If toxic air pollutant emissions exceed relevant screening levels, appropriate air modeling would determine ambient air concentration. Reasonable available control technologies would be employed to control emissions if acceptable ambient air concentrations were exceeded. Should remedial action be necessary, air-screening analysis would determine the levels of emissions likely to be associated with the options being proposed. The INEEL is categorized as an attainment or unclassified area for ambient air quality (42 USC 7401 et seq.) and, therefore, is subject to IDAPA 16.01.01.575-77 and 40 CFR 50. In addition, the Safe Drinking Water Act applies to ensure protection of the groundwater beneath OU 3-14.

5.11.1.3 Location-Specific ARARs. This section identifies potential location-specific ARARs that may apply to remedial actions at OU 3-14. Location-specific ARARs are regulatory requirements or restrictions on activities in specific locations that a given remedial action must meet.

General location-specific regulatory requirements are identified and the applicability of these requirements to OU 3-14 is discussed below.

5.11.1.3.1 Identification of Location-Specific Regulatory Requirements—Federal and Idaho statutes and regulations were reviewed to identify location-specific regulatory requirements that may apply to potential remedial activities and new hazardous waste activities at OU 3-14. The requirements identified in this subsection are location-specific and restrict or prohibit certain activities at or near locations similar to OU 3-14. Specific characteristics of the OU 3-14 area, considered in this evaluation, are its proximity to a flood plan, the proximity of surface water (Big Lost River), its location in a seismic region, the presence of endangered species, the presence of archaeological and historical sites, and the presence of drinking water wells.

The following location-specific regulatory requirements potentially applicable to OU 3-14 remedial activities were reviewed:

- Prevention of Significant Deterioration of Air quality (IDAPA 16.01.01581)
- Flood plains [40 CFR 270 and 264; 40 CFR 6, appendix A (Executive Order 11988)]; Fish and Wildlife coordination Act [(16 U.S. Code (USC) et seq., 40 CFR 6.302, and Idaho Hazardous Waste Management Regulations, Title 1, Ch. 5, 01.5227,09)]

- Seismic Consideration (40 CFR 270 and 264; Idaho Hazardous Waste Management Regulations, Title 1, Ch. 5, 01.5227,09)
- Wetlands [10 CFR 1022, 40 CFR 230; 33 CFR Parts 320-330; and 40 CFR 6, Appendix A (Executive Order 11988)]
- Endangered Species Act (50 CFR Parts 17, 200, and 402; 33 CFR Parts 320-330)
- Archaeological Resources and Antiquities (Archaeological Resources Protection Act; 43 CFR 7, 36 CFR Parts 65 and 296; and 25 CFR 261)
- National Historic Places (National Historic Preservation Act, 16 USC 470; 36 CFR 800)
- Threatened Fish and Wildlife (50 CFR 227.4)
- Migratory Bird Conservation (16 USC 715)
- Protection of Bald and Golden Eagles Act (16 USC 1531).

5.11.1.3.2 Determination of Preliminary Location-Specific Regulatory Requirements for OU 3-14—A review of these location-specific regulatory requirements suggests that the National Historic places requirement may be a potential ARAR. The remaining requirements will be further evaluated in the RI/FS.

Currently, no sites within the area have been deemed by the Idaho State Historical Society as potentially eligible for the National Register of Historic Places. Potentially eligible sites must be protected under the National Historic Preservation Act. Any future activities that could potentially impact sites that may be identified in the future as being eligible for historic registration would be discussed with the Idaho State Historical Preservation Office.

5.11.1.3.3 Location-Specific Regulatory Requirements Not Applicable to OU 3-14—Currently, Site CPP-26, which is included in Site CPP-96, is located in the 100-year flood plain, (Berenbrock and Kjelstrom 1998). To more accurately depict the limits of the 100-year flood plain, DOE is performing additional flood plain analysis that may impact the flood plain boundary in the vicinity of these two sites. In addition, ongoing construction activities as part of the OU 3-13 Tank Farm interim action (see Section 1.5.4) may change the topography and modify the boundary of the 100-year flood plain. These activities and their impact on the two sites will be reevaluated during the OU 3-14 feasibility study.

Operable Unit OU 3-14 is not known to be located within a critical habitat of an endangered or threatened species, including bald or golden eagles, nor are such species known to frequent the area. However, bald eagles, golden eagles, and American peregrine falcons have been observed at the INEEL. In addition, eight species of concern to the Idaho Fish and Game and BLM have been observed at the INEEL. Potential impacts to endangered species may be further evaluated prior to remedial activities.

No fish or wildlife addressed by the Threatened Fish and Wildlife Act are found at OU 3-14, nor do the planned activities involve the modification of a stream because no streams are located on the OU 3-14 site, and surface runoff is controlled. Regulatory requirements associated with the protection of fish and wildlife will be further evaluated in the RI/FS.

Occasionally, migratory waterfowl are observed at WAG 3. However, the area contains no critical habitat, and potential remedial activities are not anticipated to have a potential for adverse impact to migratory waterfowl.

The seismic standards in RCRA and Idaho regulations apply to the counties specified in the regulations. Waste Area Group 3 is located in Butte county, which is not listed in Appendix VI to 40 CFR 264 or in the Idaho regulations, and is therefore presumed to be in compliance with the seismic standard.

5.11.2 To-Be-Considered Guidance

To-be-considered criteria are advisories, guidelines, or policies that do not meet the definition of ARARs. To-be-considered criteria may assist in determining protective criteria in the absence of specific ARARs. Preliminary TBC criteria for the OU 3-14 site include the following:

- DOE orders and manuals
- Executive orders
- Federal and state rules pertaining to relevant subjects that are not promulgated criteria, limits, or standards by definition of Section 121[d] of CERCLA (42 USC 9601)
- EPA guidance documents
- Remedial action decisions at similar Superfund sites.

Table 5-2 lists potential TBC criteria for OU 3-14.

5.12 Administrative Support

5.12.1 Administrative Record

An administrative record file will be maintained for the OU 3-14 RI/FS. In addition to other technical and legal documents and correspondence, the administrative record is a collection of project documents required by CERCLA. The official administrative record is located at the INEEL Technical Library in Idaho Falls, Idaho. Copies of documents in the administrative record file are also located in information repositories at the Albertson Library at Boise State University in Boise, Idaho and at the University of Idaho Library in Moscow, Idaho.

5.12.2 Community Relations Plan

Community relations activities for the OU 3-14 RI/FS will be guided by the INEEL Community Relations Plan (DOE-ID). This plan is a guide to public involvement and community relations in the Environmental Restoration Program at the INEEL. It was developed to involve the community in the environmental cleanup decision-making process. Copies of the Community Relations Plan may be reviewed at the information repositorieslisted above or by calling the INEEL toll-free number, 800-708-2680.

Community relations activities for OU 3-14 RI/FS, which coincide with important phases of the project, are designed to keep the public informed and involved. These activities are detailed below.

- A status description and a RI/FS overview were included in the *INEEL Reporter,* a bimonthly publication. Additional information may be included as the project progresses.

- A kick-off fact sheet was distributed. The fact sheet introduced background information about previous CERCLA investigations at WAG 3 and the current RI/FS.

- The proposed plan will be distributed to individuals on the INEEL mailing list before the start of the 30-day public comment period. A fact sheet describing RI/FS results will be distributed before the proposed plan is submitted.

- A public meeting will be held to present the proposed plan and the RI/FS results and to provide the public an opportunity for discussion and comment. Opportunities for briefings, site tours, conference calls, and group discussions will be available upon request. A site tour of the INEEL or INTEC, or a briefing may be requested at any time during the project.

- The RI/FS report, ROD, and other project documents will be available in the administrative record for public inspection as they are finalized and before finalization of the ROD. The ROD will include a responsiveness summary in which comments submitted by the public will be addressed. Those who submit comments will receive a copy of the final ROD.

6. SCHEDULE

A detailed schedule (chart size) showing the working schedule, major project deliverables and critical path activities for the OU 3-14 project is presented at the end of this section. Given the complexity of the project relative to sampling, analysis, and logistics and impacts from other programs such as RCRA and the HLW & FD EIS (DOE 1999), the scope and schedule for this project have been extended.

Before work commences on the major activities of the OU 3-14 RI/FS, a scoping discussion will be held between DOE-ID, EPA, and IDEQ. Depending on the complexity of the work scope, a scoping meeting may be held to obtain agreement as to direction and work scope. Following scoping, a memorandum delineating the scope of work will be submitted to all parties documenting the agreed-upon approach and activities.

6.1 OU 3-14 RI/FS Activities

Brief descriptions of the major OU 3-14 RI/FS activities are provided below.

- RI/FS Work Plan—This document delineates the history associated with the OU 3-14 site and presents a high-level path forward to site characterization, risk assessment, modeling, and potential remedial actions. Included within the OU 3-14 RI/FS Work Plan are the Tank Farm Soil and INTEC injection well field sampling plans and health and safety plans (HASPs), and the waste management plan to implement Phase I of the characterization activities.

- Phase I Data Collection—This activity will implement data gathering activities associated with the Tank Farm soil and the injection well. The data will be used to plan Phase II, collect sample material for the contaminant transport studies, plan the possible treatability studies, and develop the risk assessment and groundwater modeling strategies.

- Phase I Summary Report—A report compiling and evaluating the data collected during the Phase I Tank Farm soil investigation.

- Additional Soil Sites Summary Report—The sites CPP-61, CPP-81, and CPP-82 will be evaluated from past activities and process knowledge. The summary report will present a path forward concerning the data needs and data gaps.

- Remedial Alternatives Screening Report—This summary report will present the results of remedial technologies screening applicable to the OU 3-14 feasibility study. This report will address potential remedial alternatives for the Tank Farm soil and groundwater (i.e., injection well). Included in the Remedial Alternatives Screening Report is the identification of chemical and physical parameters and data gaps.

- Phase II Characterization Work Plan—The characterization work plan will cover all applicable aspects of field sampling, including methods, handling procedures, Quality Assurance/Quality Control, FSPs, HASPs, WMP, necessary to implement the Phase II characterization activities. The preparation of this work plan will be dependent upon the results from the Phase I investigation.

- Phase II Data Collection—This activity will implement the second phase of data collection for OU 3-14. Phase II will concentrate on those areas deemed to need a more exhaustive suite of analyses from Phase I Data Collection.

- Phase II Summary Report—A report compiling and evaluating the data collected in the Phase II. Contaminant Transport Study Work Plan—This work plan will document the approach to obtain K_d values and leachability of contaminants associated with the Tank Farm soil. Included in the Contaminant Transport Study Work Plan will be the characterization, waste management, and health and safety requirements and issues.

- Aquifer Summary Report—The Aquifer Summary Report will provide the information collected during the injection well and aquifer drilling activities described in the OU 3-14 RI/FS Work Plan.

- Contaminant Transport Study and Report—This encompasses two activities, one using cold Tank Farm soil to gather parameters such as acid demand and K_d values. The other activity will investigate leachability of contaminants from hot Tank Farm soil.

- Risk Assessment Strategy and Groundwater Report—This effort will identify the approach for the risk assessment and exposure modeling. The groundwater strategy will delineate the computer code and data input for the SPRA under INTEC. Finally, the conceptual site model will be determined that encompasses both a physical and contaminant release model for the SPRA and the Tank Farm soil.

- Remedial Investigation/Baseline Risk Assessment (RI/BRA) Report—This report will include the screening of all contaminants and calculations of exposures for the Tank Farm Soils and Injection Well contaminants. This report will also establish the contaminants of concern for the Tank Farm soil and the injection well that will be used in the Feasibility Study evaluations.

- Injection Well Treatability Study Work Plan—The work plan will delineate a detailed scope of work and technical approach for the injection well treatability study, including the necessary characterization, waste management, and health and safety requirements and issues.

- Injection Well Treatability Study and Report—The treatability study will address the efficacy of those remedial technologies agreed upon as having the highest probability of success.

- Tank Farm Treatability Study Work Plan—The work plan will delineate a detailed scope of work and technical approach for the Tank Farm soil treatability study, including the necessary characterization, waste management, and health and safety requirements and issues.

- Tank Farm Soil Treatability Study and Report—The treatability study will address the efficacy of those remedial technologies agreed upon as having the highest probability of success.

- RI/FS Report—This Report will complete screening, evaluate the remaining remedial technology alternatives using the information gathered during Phase I and II characterization

and the various studies. The detailed evaluations will use seven of the nine CERCLA evaluation criteria.

- National Remedy Review Board— Due to the size, complexity, and cost (>$75 million) of the remedies selected for OU 3-14, it is expected that, the project will undergo an EPA National Remedy Review Board meeting.

- Proposed Plan—The Proposed Plan is a summary of the RI/BRA and RI/FS Report with a preferred remedy recommended for both the Tank Farm soil and the injection well issues.

- Public Comment Period—The public will be presented with the Proposed Plan, and a formal public comment period will be initiated along with public meetings on the Proposed Plan.

- Record of Decision—The Record of Decision (ROD), including the Responsiveness Summary, will be the document that describes the remedy selected for implementation during OU 3-14 RD/RA phases and the associated site risks.

Table 6-1 presents scheduled completion dates for these activities.

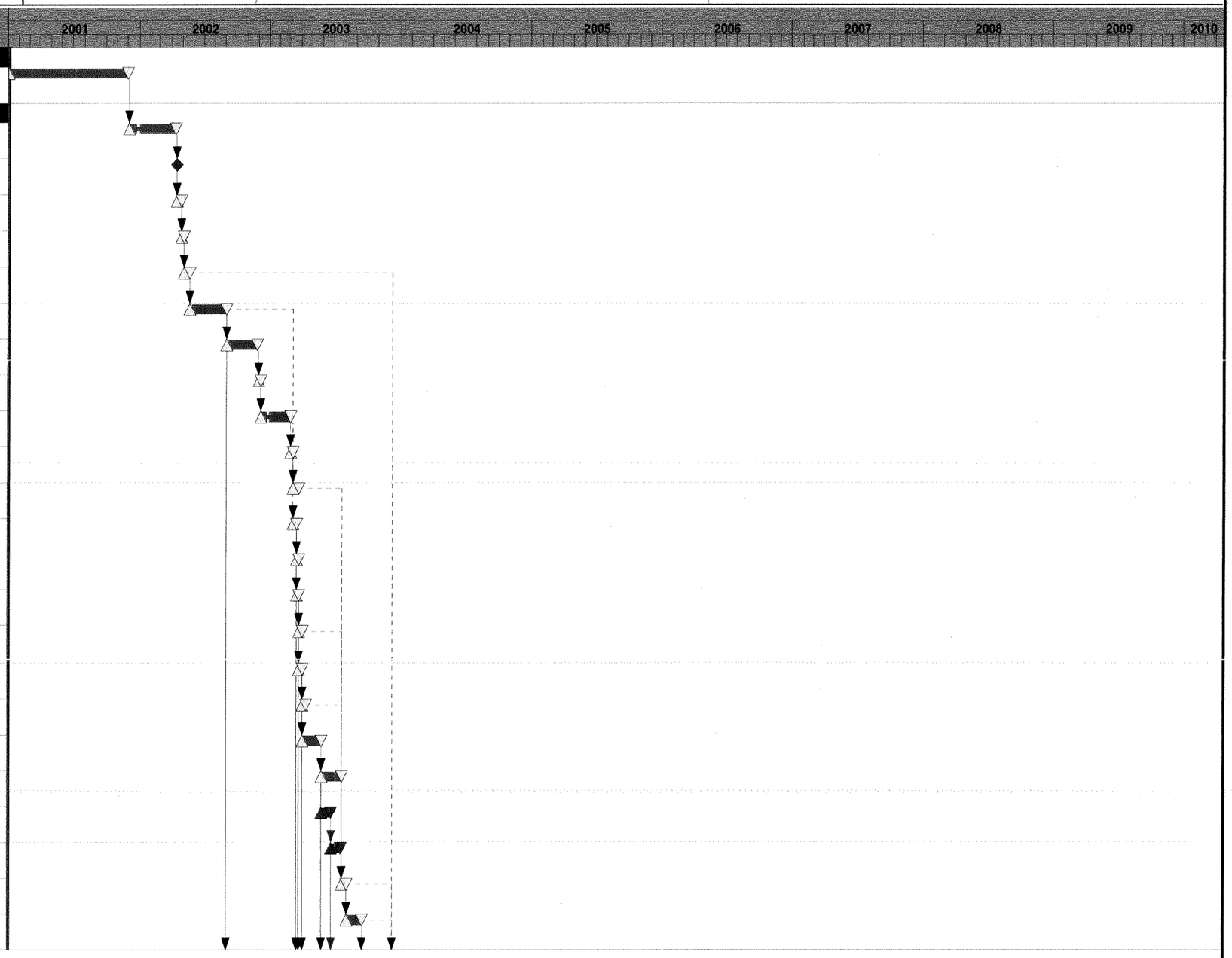
Table 6-1. Schedule for the major OU 3-14 RI/FS documents that will be submitted to the EPA and IDEQ for review and comment.

Document[a]	Document Type	Working Schedule	Enforceable Deadline
Draft RI/FS Work Plan submitted to EPA and IDEQ	Primary	June 27, 2000	June 30, 2000
Draft INTEC Aquifer Summary Report submitted to EPA and IDEQ	Secondary	March 26, 2003	NA
Draft Phase I Summary Report submitted to EPA and IDEQ	Secondary	December 8, 2003	NA
Draft Additional Soil Sites Summary Report submitted to EPA and IDEQ	Secondary	June 13, 2001	NA
Draft Remedial Alternatives Screening Report submitted to EPA and IDEQ	Secondary	March 1, 2004	NA
Draft Phase II Characterization Work Plan submitted to EPA and IDEQ	Primary	September 8, 2004	January 31, 2005
Draft Phase II Summary Report submitted to EPA and IDEQ	Secondary	December 14, 2006	NA
Draft Contaminant Transport Study Work Plan submitted to EPA and IDEQ	Secondary	May 4, 2004	NA
Draft Contaminant Transport Study Report submitted to EPA and IDEQ	Secondary	May 17, 2005	NA
Draft Risk Assessment and Groundwater Strategy Report submitted to EPA and IDEQ	Secondary	December 21, 2004	NA
Draft RI/BRA Report submitted to EPA and IDEQ	Secondary	October 25, 2007	NA
Draft Injection Well Treatability Study Work Plan submitted to EPA and IDEQ	Secondary	November 11, 2004	NA
Draft Injection Well Treatability Study Report submitted to EPA and IDEQ	Secondary	November 29, 2005	NA
Draft Tank Farm Soils Treatability Study WP submitted to EPA and IDEQ	Secondary	May 4, 2005	NA
Draft Tank Farm Soils Treatability Study Report submitted to EPA and IDEQ	Secondary	October 2, 2006	NA
Draft RI/FS Report submitted to EPA and IDEQ	Primary	April 10, 2008	October 31, 2008
EPA National Remedy Review Board Briefing Package and Presentation submitted to EPA	Other	August 29, 2008	NA
Draft Proposed Plan submitted to EPA and IDEQ	Secondary	January 13, 2009	NA
Draft OU 3-14 Record of Decision submitted to EPA and IDEQ	Primary	September 14, 2009	May 31, 2010

WAG 3

OU3-14 RI/FS Tank Farm Work Activities

Activity ID	Activity Description	Orig Dur	Rem Dur	Early Start	Early Finish
Phase I Tank Farm Soils Data Collection					
4045	Tank Farm Soils Cold Test Demonstration	234	234	02JAN01*	30NOV01
OU 3-14 Group I Tank Farm Constrn Activities					
4050	Tank Farm Soils Startup	89	89	03DEC01	12APR02
4055	Beg Phase I Tank Farm Soils Data Collection Act	0	0	15APR02	
4060	14 day Notification to Agencies Concerning Sampl	11	11	15APR02	29APR02
4065	Mobilize to INTEC Tank Farm	5	5	30APR02	06MAY02
4070	Conduct Surface Gamma Survey	10	10	07MAY02	20MAY02
4075	Vacuum Excav the G-series Probeholes to 15 feet	73	73	21MAY02	03SEP02
4080	Begn Inst G-ser Probes to Top of Basalt (~45 ft)	61	61	04SEP02	27NOV02
4085	Demobilize from INTEC Tank Farm	5	5	02DEC02	06DEC02
4090	Winter Shutdown	54	54	09DEC02	28FEB03
4095	Mobilize to INTEC Tank Farm	5	5	03MAR03	07MAR03
4100	Fnsh Inst G-ser Probes to Top of Basalt (~45 ft)	12	12	10MAR03	25MAR03
4105	Vacuum Excav the D-series Probeholes to 15 feet	6	6	10MAR03*	17MAR03
4110	Instal D-series Probes to Top of Basalt (~45 ft)	6	6	18MAR03	25MAR03
4115	Vacuum Excav the E-series Probeholes to 15 feet	6	6	18MAR03*	25MAR03
4120	Instal E-series Probes to Top of Basalt (~45 ft)	6	6	26MAR03	02APR03
4125	Vacuum Excav the C-series Probeholes to 15 feet	7	7	26MAR03*	03APR03
4130	Instal C-series Probes to Top of Basalt (~45 ft)	7	7	04APR03	14APR03
4135	Vacuum Excav the A-series Probeholes to 15 feet	38	38	04APR03*	28MAY03
4140	Instal A-series Probes to Top of Basalt (~45 ft)	38	38	29MAY03	22JUL03
4145	Vacuum Excav the B-series Probeholes to 15 feet	18	18	29MAY03*	23JUN03
4150	Instal B-series Probes to Top of Basalt (~45 ft)	18	18	24JUN03	18JUL03
4155	Perf Downhole Gamma Logging of Exist Probeholes	10	10	23JUL03	05AUG03
4160	Pref Downhole Gamma Logging G-series Probeholes	30	30	06AUG03	17SEP03



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Finish Date	03MAR10
Data Date	01JAN01
Run Date	20DEC00 08:33

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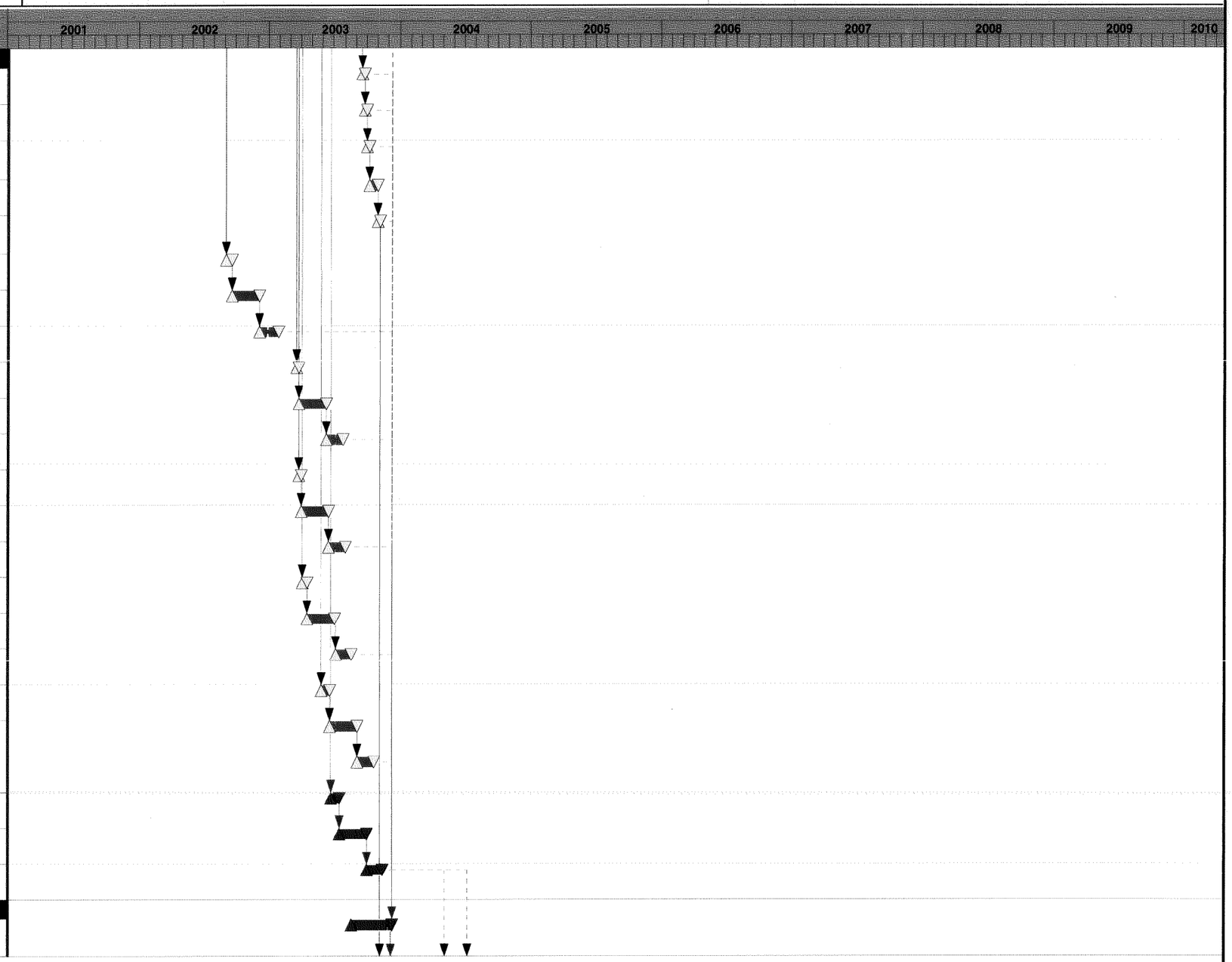
Date	Revision	Checked	Approved

WAG 3

OU3-14 RI/FS Tank Farm Work Activities

Activity ID	Activity Description	Orig Dur	Rem Dur	Early Start	Early Finish
OU 3-14 Group I Tank Farm Constrn Activities					
4165	Pref Downhole Gamma Logging D-series Probeholes	5	5	18SEP03	24SEP03
4170	Pref Downhole Gamma Logging E-series Probeholes	5	5	25SEP03	01OCT03
4175	Pref Downhole Gamma Logging C-series Probeholes	5	5	02OCT03	08OCT03
4180	Pref Downhole Gamma Logging A-series Probeholes	15	15	09OCT03	29OCT03
4185	Perf Downhole Gamma Logging B-Series Probeholes	6	6	30OCT03	06NOV03
4190	Sample G-series Probehole Drums	10	10	04SEP02*	17SEP02
4195	Analyze G-series Probehole Samples	54	54	18SEP02	04DEC02
4200	Validate G-series Analytical Results	32	32	05DEC02	27JAN03
4205	Sample D-series Probehole Drums	5	5	18MAR03	24MAR03
4210	Analyze D-series Probehole Samples	54	54	25MAR03	09JUN03
4215	Validate D-series Analytical Results	32	32	10JUN03	24JUL03
4220	Sample E-series Probehole Drums	5	5	26MAR03	01APR03
4225	Analyze E-series Probehole Samples	54	54	02APR03	17JUN03
4230	Validate E-series Analytical Results	32	32	18JUN03	01AUG03
4235	Sample C-series Probehole Drums	10	10	04APR03	17APR03
4240	Analyze C-series Probehole Samples	54	54	18APR03	03JUL03
4245	Validate C-series Analytical Results	32	32	07JUL03	19AUG03
4250	Sample A-series Probehole Drums	15	15	29MAY03	18JUN03
4255	Analyze A-series Probehole Samples	54	54	19JUN03	04SEP03
4260	Validate A-series Analytical Results	32	32	05SEP03	20OCT03
4265	Sample B-series Probehole Drums	15	15	24JUN03	15JUL03
4270	Analyze B-series Probehole Samples	54	54	16JUL03	30SEP03
4275	Validate B-series Analytical Results	32	32	01OCT03	13NOV03
Phase I Tank Farm Soils Summary Report					
4280	Prepare Draft Phase I Tank Farm Soils Summ Reprt	76	76	20AUG03	08DEC03



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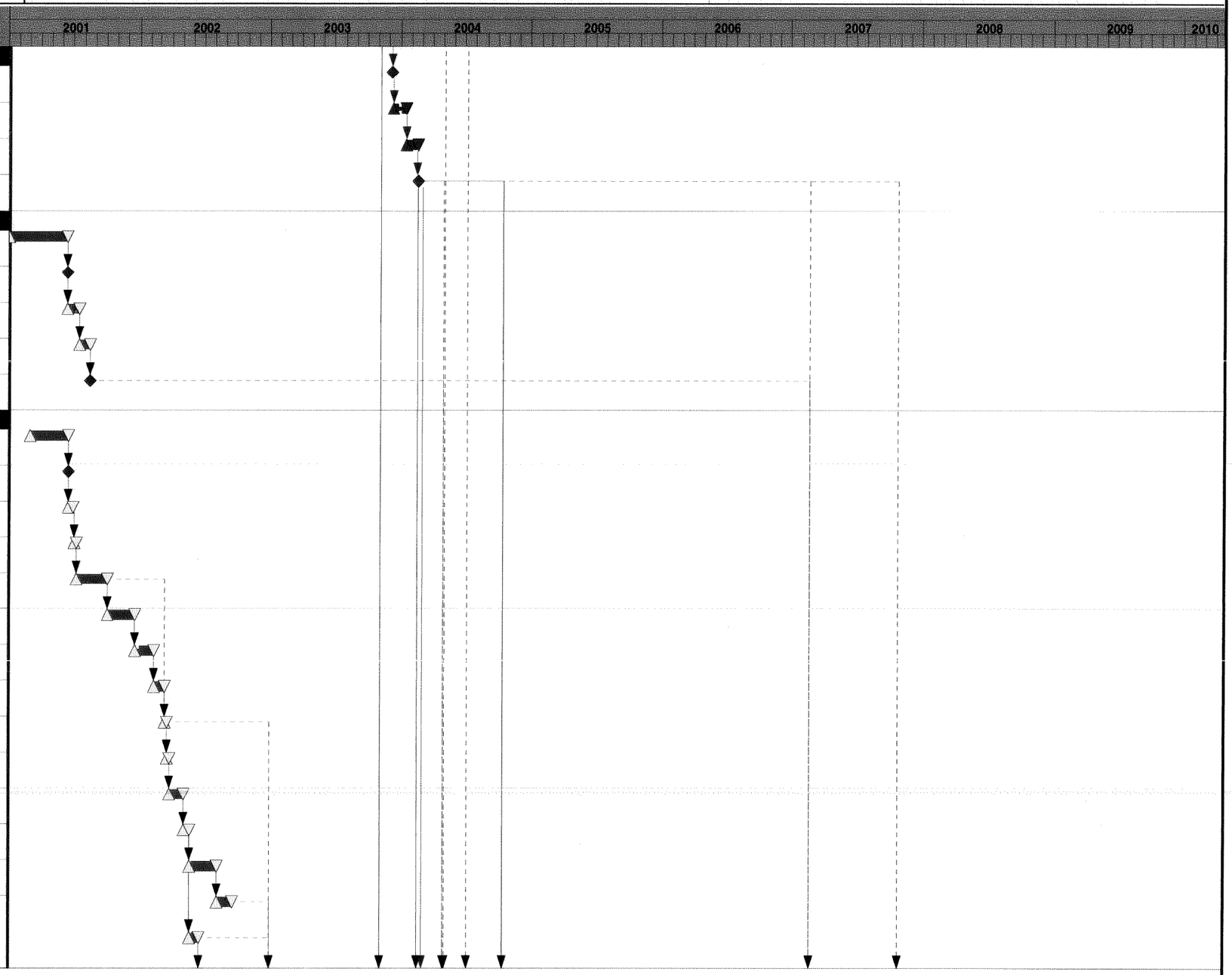
Critical Activity

Date	Revision	Checked	Approved

WAG 3

OU3-14 RI/FS Tank Farm Work Activities

Activity ID	Activity Description	Orig Dur	Rem Dur	Early Start	Early Finish
Phase I Tank Farm Soils Summary Report					
4285	Drft Phas I Tnk Frm Soils Summ Rpt to EPA & IDEQ	0	0	08DEC03	
4290	EPA & IDEQ Review Drft Phase I Tnk Farm Summ Rpt	22	22	09DEC03	15JAN04
4295	Incorporate EPA and IDEQ Comments	22	22	16JAN04	16FEB04
4300	Sub Fnl Phs I Tnk Frm Soils Summ Rpt to EPA & ID	0	0		16FEB04
Additional Soil Sites Summary Report					
4305	Develop Additional Soil Sites Summary Report	116	116	02JAN01	13JUN01
4310	Drf Additional Soil Sites Summ Rpt to EPA & IDEQ	0	0	13JUN01	
4315	EPA & IDEQ Review Drft Add Soil Sites Summ Rpt	22	22	14JUN01	16JUL01
4320	Incorporate EPA and IDEQ Comments	22	22	17JUL01	15AUG01
4325	Sub Fnl Add Soil Sites Summ Rpt to EPA & IDEQ	0	0	15AUG01	
INTEC Aquifer Data Collection					
4330	INTEC Aquifer Startup	75	75	01MAR01*	14JUN01
4335	Begin Aquifer Data Collection Activities	0	0	15JUN01	
4340	14 day Notification to Agencies Concern Sampling	11	11	15JUN01	29JUN01*
4345	Mobilize to Injection Well Site	5	5	02JUL01*	09JUL01
4350	Drill and Sample Injection Well	60	60	10JUL01	02OCT01
4355	Analyze Injection Well Samples	54	54	03OCT01	19DEC01
4360	Validate Injection Well Data	32	32	20DEC01	11FEB02
4365	Agencies Review the Data	20	20	12FEB02	11MAR02
4370	Secure the Injection Well	5	5	12MAR02	18MAR02
4375	Mobilize to Aquifer Well 1 Site	5	5	19MAR02	25MAR02
4380	Drill and Sample Aquifer Well 1	30	30	26MAR02	06MAY02
4385	Packer Testing of Aquifer Well 1	10	10	07MAY02	20MAY02
4390	Analyze Aquifer Well 1 Samples	54	54	21MAY02	06AUG02
4395	Validate Aquifer Well 1 Data	32	32	07AUG02	20SEP02
4400	Complete Aquifer Well 1 Installation	20	20	21MAY02	18JUN02



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Finish Date	03MAR10
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Run Date	20DEC00 10:23

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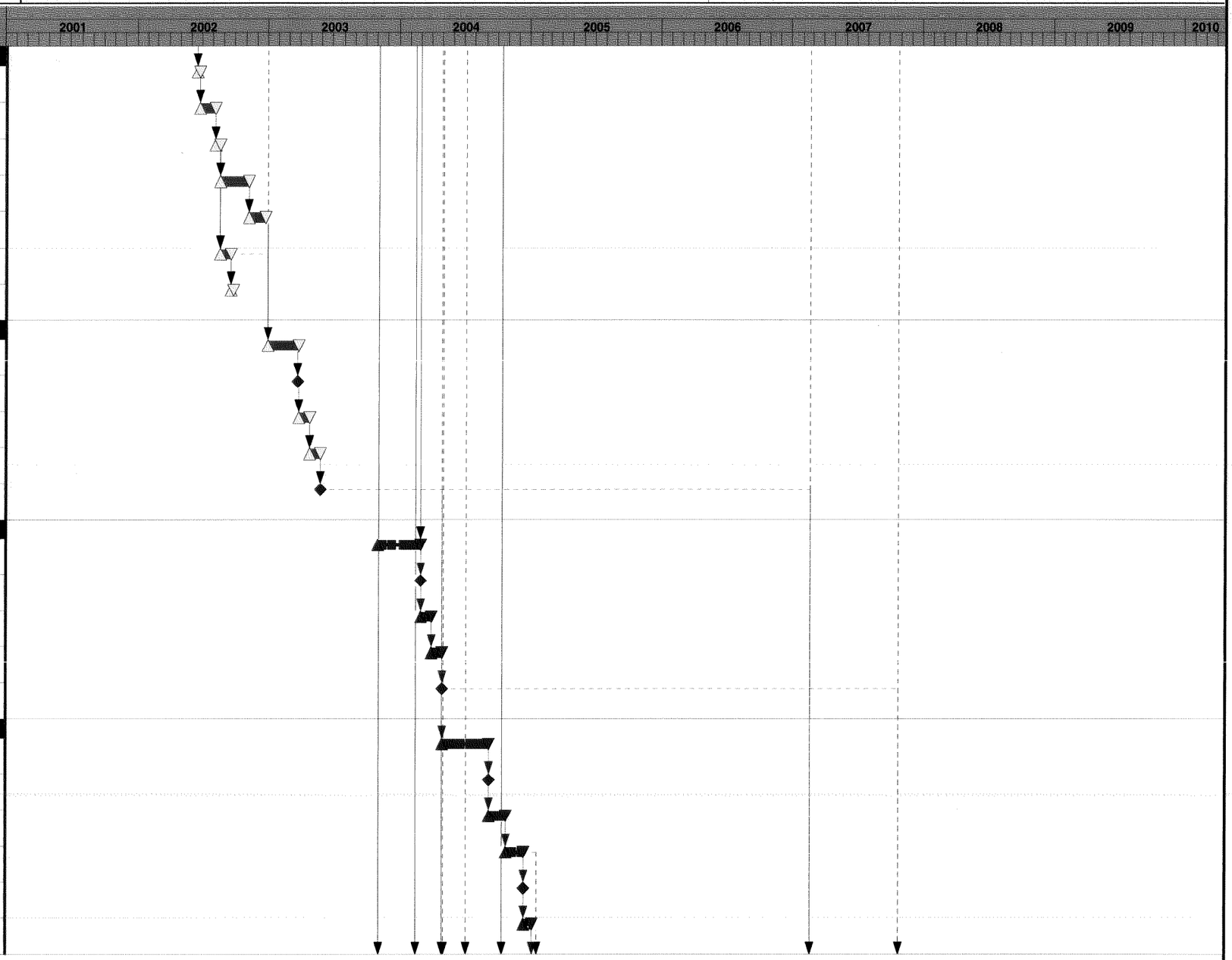
Date	Revision	Checked	Approved

WAG 3

OU3-14 RI/FS Tank Farm Work Activities

Activity ID	Activity Description	Orig Dur	Rem Dur	Early Start	Early Finish
INTEC Aquifer Data Collection					
4410	Mobilize to Aquifer Well 2 Site	5	5	19JUN02	25JUN02
4415	Drill and Sample Aquifer Well 2	30	30	26JUN02	07AUG02
4420	Packer Testing of Aquifer Well 2	10	10	08AUG02	21AUG02
4425	Analyze Aquifer Well 2 Samples	54	54	22AUG02	06NOV02
4430	Validate Aquifer Well 2 Data	32	32	07NOV02	24DEC02
4435	Complete Aquifer Well 2 Installation	20	20	22AUG02	19SEP02
4440	Decon & Demobilize from INTEC	5	5	20SEP02	26SEP02
INTEC Aquifer Data Summary Report					
4445	Prepare INTEC Aquifer Data Summary Report	60	60	02JAN03	26MAR03
4450	Subm Drft INTEC Aquifer Summ Rpt to EPA & IDEQ	0	0	26MAR03	
4455	EPA & IDEQ Rvw Drft INTEC Aquifer Data Summ Rprt	22	22	27MAR03	25APR03
4460	Incorporate EPA and IDEQ Comments	22	22	28APR03	28MAY03
4465	Submt INTEC Aquifer Data Summ Rprt to EPA & IDEQ	0	0		28MAY03
Remedial Alternatives Screening Report					
4470	Develop Remedial Alternatives Screening Report	76	76	05NOV03	01MAR04
4475	Subm Drft Remed Altern Screen Rpt to EPA & IDEQ	0	0	01MAR04	
4480	EPA & IDEQ Review Draft Remed Altern Screen Rpt	22	22	02MAR04	31MAR04
4485	Incorporate EPA and IDEQ Comments	22	22	01APR04	30APR04
4490	Sub Fnl Remed Altern Screen Rpt to EPA & IDEQ	0	0	30APR04	
Phase II Characterization Work Plan (CWP)					
4495	Develop Draft Phase II CWP	90	90	03MAY04	08SEP04
4500	Submit Draft Phase II CWP to EPA and IDEQ	0	0	08SEP04	
4505	EPA and IDEQ Review Draft Phase II CWP	33	33	09SEP04	25OCT04
4510	Incorporate EPA and IDEQ Comments	33	33	26OCT04	13DEC04
4515	Submit Draft Final Phase II CWP to EPA and IDEQ	0	0	13DEC04	
4520	EPA and IDEQ Review Draft Final Phase II CWP	11	11	14DEC04	05JAN05



Start Date	01JUN00
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Data Date	01JAN01
Run Date	20DEC00 08:33

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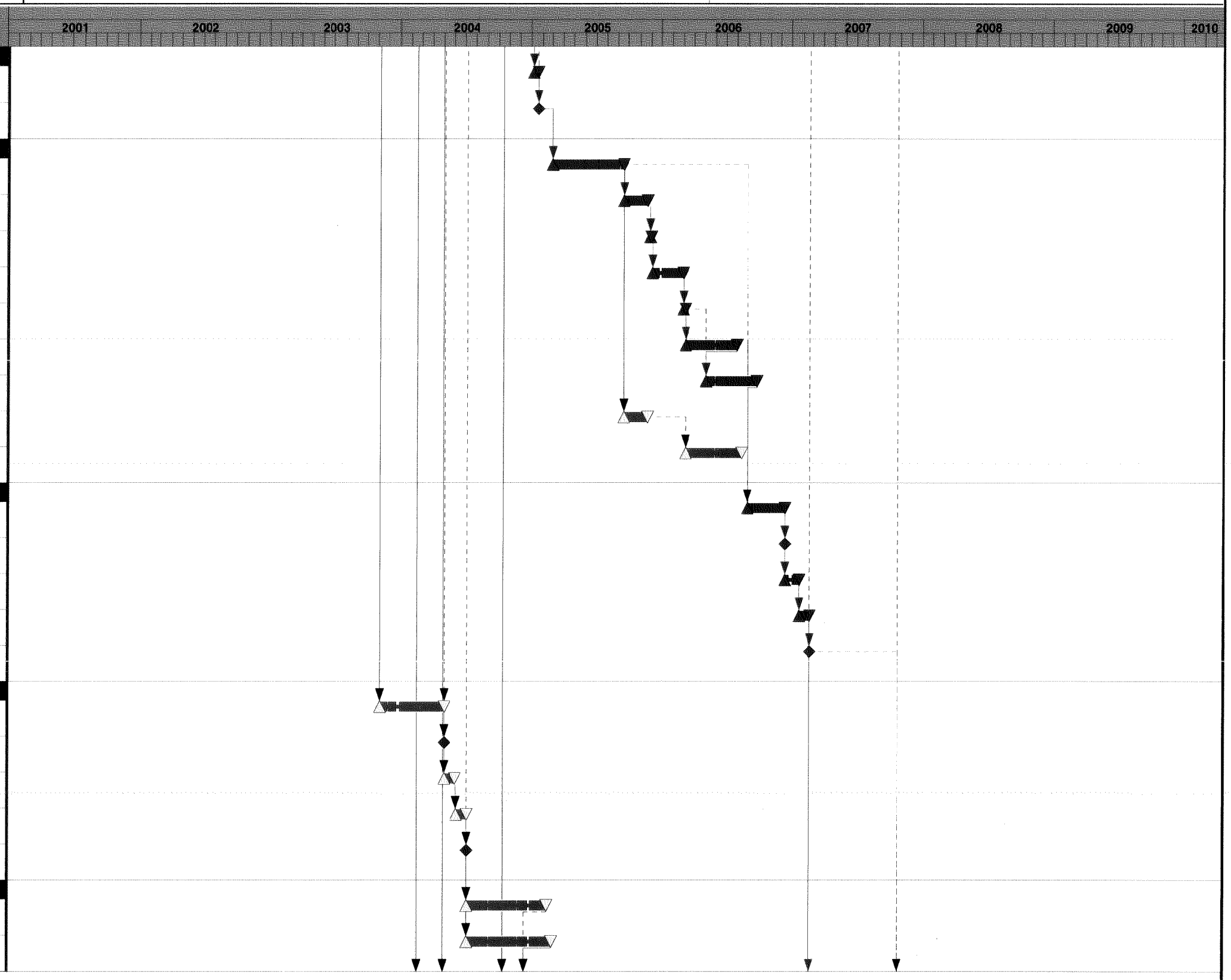
Critical Activity

Date	Revision	Checked	Approved

WAG 3

OU3-14 RI/FS Tank Farm Work Activities

Activity ID	Activity Description	Orig Dur	Rem Dur	Early Start	Early Finish
Phase II Characterization Work Plan (CWP)					
4525	Incorporate EPA and IDEQ Comments	11	11	06JAN05	20JAN05
4530	Submit Final Phase II CWP to EPA and IDEQ	0	0	20JAN05	
Phase II Data Collection					
4535	Conduct Pothole Probing Activities	140	140	01MAR05	15SEP05
4540	Begin Probe Installation	49	49	16SEP05	23NOV05
4545	Demobilize from INTEC Tank Farm	5	5	28NOV05	02DEC05
4550	Winter Shutdown	56	56	05DEC05	28FEB06
4555	Mobilize to the Tank Farm	5	5	01MAR06	07MAR06
4560	Finish Probe Installation	101	101	08MAR06	28JUL06
4565	Conduct Radiation Surveys	100	100	04MAY06	25SEP06
4570	Begin Soil Samples Collection and Analyses	49	49	16SEP05	23NOV05
4575	Finish Soil Samples Collection and Analyses	111	111	08MAR06*	11AUG06
Phase II Summary Report					
4580	Prepare Draft Phase II Summary Report	76	76	28AUG06	14DEC06
4585	Subm Draft Phase II Summ Report to EPA and IDEQ	0	0	14DEC06	
4590	EPA and IDEQ Review Draft Summary Report	22	22	15DEC06	23JAN07
4595	Incorporate EPA and IDEQ Comments	22	22	24JAN07	22FEB07
4600	Subm Fnl Phase II Summary Report to EPA & IDEQ	0	0	22FEB07	
Contaminant Transport Study Work Plan (CTS WP)					
4605	Develop Draft CTS WP	120	120	07NOV03	04MAY04
4610	Submit Draft CTS WP to EPA and IDEQ	0	0	04MAY04	
4615	EPA and IDEQ Review Draft CTS WP	22	22	05MAY04	04JUN04
4620	Incorporate EPA and IDEQ Comments	22	22	07JUN04	07JUL04
4625	Submit Final CTS WP to EPA and IDEQ	0	0	07JUL04	
Contaminant Transport Studies					
4630	Conduct Cold Contaminant Transport Study	150	150	07JUL04	14FEB05
4635	Conduct Hot Contaminant Transport Study	160	160	07JUL04	28FEB05



Start Date	01JUN00
Finish Date	03MAR10
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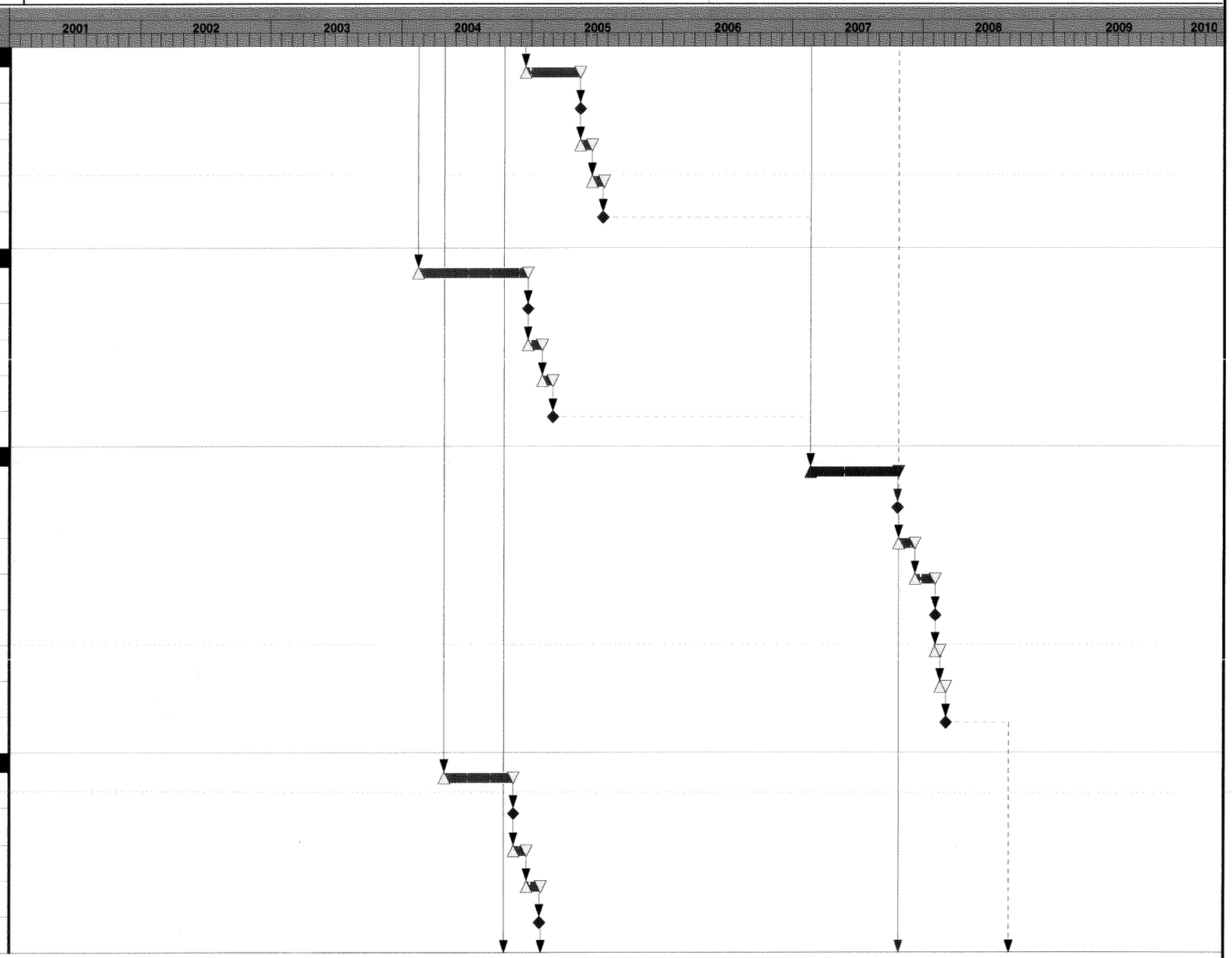
Critical Activity

Date	Revision	Checked	Approved

WAG 3

OU3-14 RI/FS Tank Farm Work Activities

Activity ID	Activity Description	Orig Dur	Rem Dur	Early Start	Early Finish
Contaminant Transport Studies					
4640	Develop Draft Contaminant Transport Study Report	106	106	13DEC04	17MAY05
4645	Subm Drft Contam Transp Study Rpt to EPA & IDEQ	0	0	17MAY05	
4650	EPA & IDEQ Review Draft Contam Transp Study Rpt	22	22	18MAY05	17JUN05
4655	Incorporate EPA and IDEQ Comments	22	22	20JUN05	20JUL05
4660	Sub Fnl Contam Transp Study Report to EPA & IDEQ	0	0	20JUL05	
Risk Assessment & Groundwater Strategy Report					
4665	Dev Drft Risk Assess and Groundwater Strtgy Rpt	216	216	17FEB04	21DEC04
4670	Drft Risk Assess & GW Strategy Rpt to EPA & IDEQ	0	0	21DEC04	
4675	EPA & IDEQ Rvw Drft Risk Assess and GW Str Rpt	22	22	22DEC04	28JAN05
4680	Incorporate EPA and IDEQ Comments	22	22	31JAN05	01MAR05
4685	Sub Fnl Risk Assess & GW Strtg Rpt to EPA & IDEQ	0	0	01MAR05	
Remed Invest/Baseline Risk Assessm (RI/BRA) Rpt					
4690	Develop Draft RI/BRA Report	172	172	23FEB07	25OCT07
4695	Submit Draft RI/BRA Report to EPA and IDEQ	0	0	25OCT07	
4700	EPA and IDEQ Review Draft RI/BRA Report	33	33	26OCT07	13DEC07
4705	Incorporate EPA and IDEQ Comments	33	33	14DEC07	06FEB08
4715	Submit Draft Final RI/BRA Report to EPA and IDEQ	0	0	06FEB08	
4720	EPA and IDEQ Review Draft Final RI/BRA Report	11	11	07FEB08	21FEB08
4725	Incorporate EPA and IDEQ Comments	11	11	22FEB08	07MAR08
4730	Submit Final RI/BRA Report to EPA and IDEQ	0	0	07MAR08	
Inject Well Treatability Study Work Pln (ITS WP)					
4735	Develop Draft ITS WP	136	136	03MAY04	11NOV04
4740	Submit Draft ITS WP to EPA & IDEQ for Review	0	0	11NOV04	
4745	EPA and IDEQ Review Draft ITS WP	22	22	12NOV04	15DEC04
4750	Incorporate EPA and IDEQ Comments	22	22	16DEC04	24JAN05
4755	SubmIT Final ITS WP to EPA and IDEQ	0	0	24JAN05	



Start Date	01JUN00
Finish Date	03MAR10
Data Date	01JAN01
Run Date	20DEC00 08:33

Early Bar
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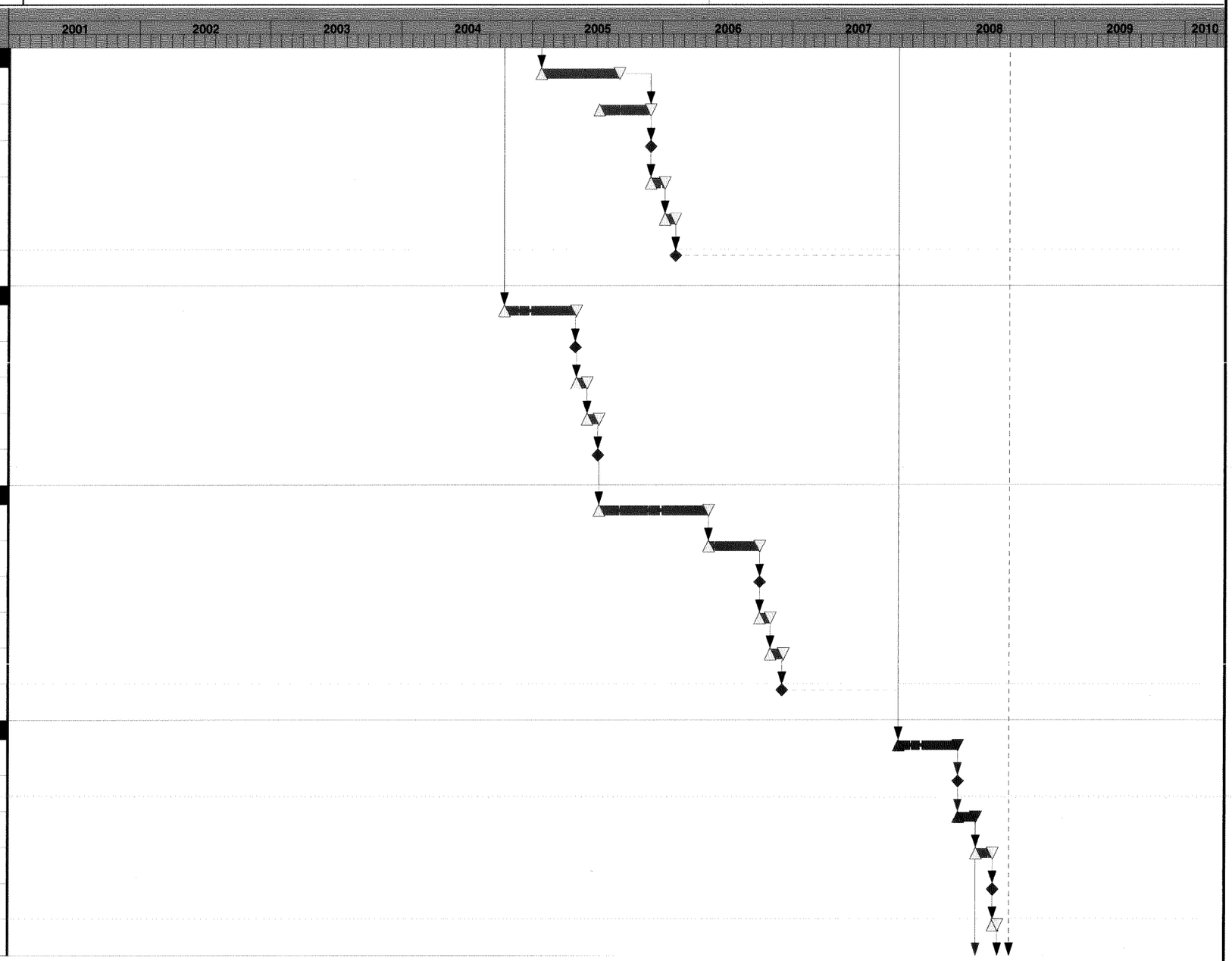
Critical Activity

Date	Revision	Checked	Approved

WAG 3

OU3-14 RI/FS Tank Farm Work Activities

Activity ID	Activity Description	Orig Dur	Rem Dur	Early Start	Early Finish
Injection Well Treatability Study					
4760	Conduct Injection Well Treatability Study	156	156	25JAN05	01SEP05
4765	Dev Draft Injection Well Treatability Study Rpt	100	100	08JUL05	29NOV05
4770	Sub Drf Inject Well Treat Stdy Rpt to EPA & IDEQ	0	0	29NOV05	
4775	EPA & IDEQ Rvw Drft Inject Well Treat Study Rpt	22	22	30NOV05	06JAN06
4780	Incorporate EPA and IDEQ Comments	22	22	09JAN06	07FEB06
4785	Sub Fnl Inject Well Treat Stdy Rpt to EPA & IDEQ	0	0	07FEB06	
Tank Farm Soils Treat Study Work Plan (TTS WP)					
4790	Develop Draft TTS WP	136	136	15OCT04	04MAY05
4795	Subm Draft TTS WP to EPA and IDEQ for Review	0	0	04MAY05	
4800	EPA and IDEQ Review Draft TTS WP	22	22	05MAY05	06JUN05
4805	Incorporate EPA and IDEQ Comments	22	22	07JUN05	07JUL05
4810	Subm Final TTS WP to EPA and IDEQ	0	0	07JUL05	
Tank Farm Soils Treatbility Study					
4815	Conduct Tank Farm Soils Treatability Study	210	210	08JUL05	10MAY06
4820	Dev Drft Tank Farm Soils Treatability Study Rpt	100	100	11MAY06	02OCT06
4825	Drf Tnk Farm Soils Treat Study Rpt to EPA & IDEQ	0	0	02OCT06	
4830	EPA & IDEQ Rvw Drft Tnk Frm Soils Treat Stdy Rpt	22	22	03OCT06	01NOV06
4835	Incorporate EPA and IDEQ Comments	22	22	02NOV06	05DEC06
4840	Fnl Tank Farm Soils Treat Stdy Rpt to EPA & IDEQ	0	0	05DEC06	
Remedial Invest/Feasibility Study (RI/FS) Report					
4845	Develop Draft RI/FS Report	112	112	26OCT07	10APR08
4850	Submit Draft RI/FS Report to EPA and IDEQ	0	0	10APR08	
4855	EPA and IDEQ Review Draft RI/FS Report	33	33	11APR08	28MAY08
4860	Incorporate EPA and IDEQ Comments	33	33	29MAY08	15JUL08
4865	Submit Draft Final RI/FS Report to EPA and IDEQ	0	0	15JUL08	
4870	EPA and IDEQ Review Draft Final RI/FS Report	11	11	16JUL08	30JUL08



Start Date	01JUN00
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Run Date	20DEC00 08:33

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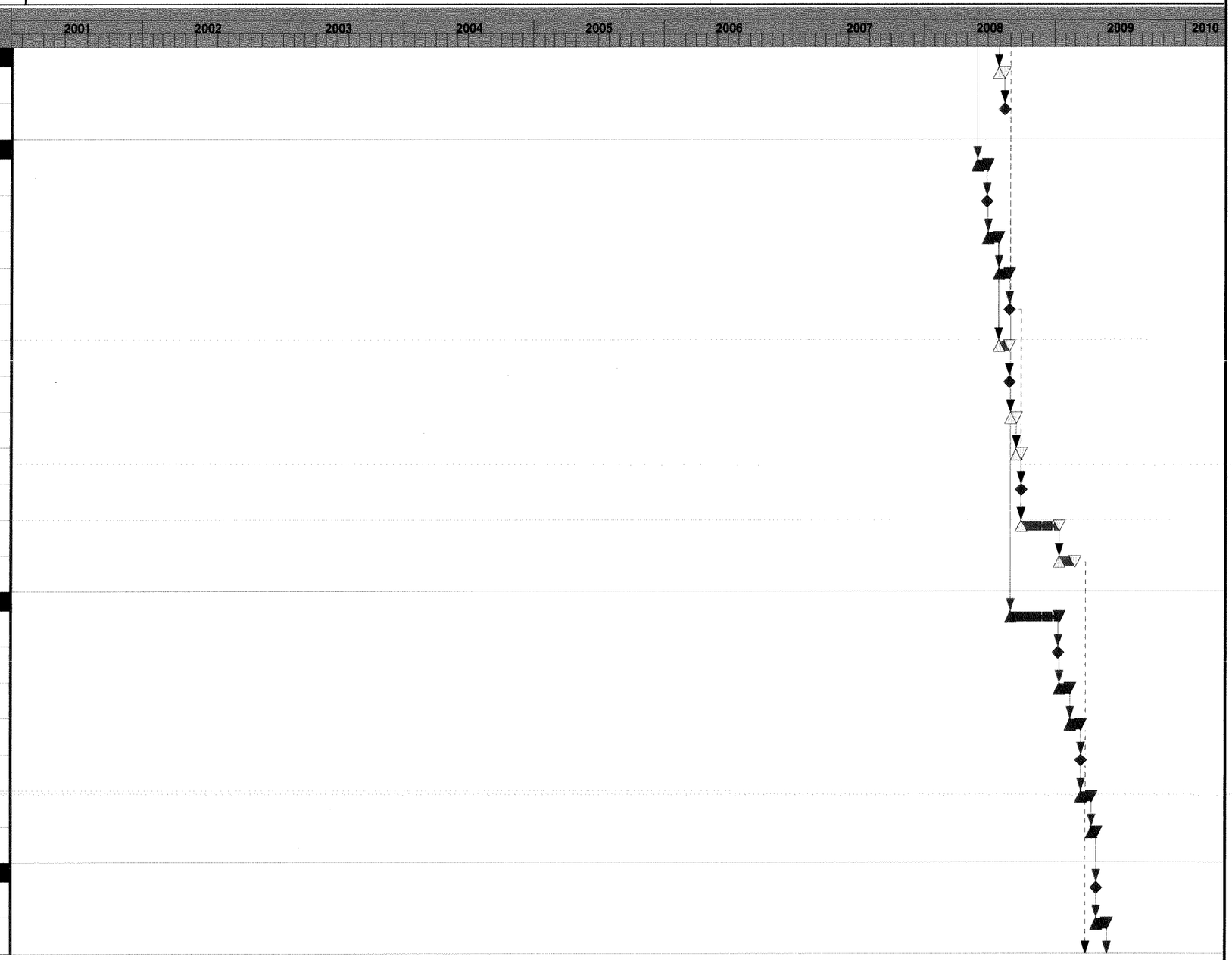
Critical Activity

Date	Revision	Checked	Approved

WAG 3

OU3-14 RI/FS Tank Farm Work Activities

Activity ID	Activity Description	Orig Dur	Rem Dur	Early Start	Early Finish
Remedial Invest/Feasibility Study (RI/FS) Report					
4875	Incorporate EPA and IDEQ Comments	11	11	31JUL08	14AUG08
4880	Submit Final RI/FS Report to EPA and IDEQ	0	0	14AUG08	
EPA National Remedy Review Board (NRRB)					
4885	Develop Draft NRRB Briefing Package	22	22	29MAY08	27JUN08
4890	Submit Draft NRRB Briefing Package to EPA	0	0	27JUN08	
4895	EPA Review Draft NRRB Briefing Package	22	22	30JUN08	30JUL08
4900	Incorporate EPA Comments	22	22	31JUL08	29AUG08
4905	Subm Final NRRB Briefing Package to EPA and IDEQ	0	0	29AUG08	
4910	Develop Draft NRRB Presentation	22	22	31JUL08	29AUG08
4915	Submit Draft NRRB Presentation to EPA	0	0	29AUG08	
4920	EPA Review Draft NRRB Presentation	11	11	02SEP08	16SEP08
4925	Incorporate EPA comments	11	11	17SEP08	01OCT08
4930	Submit Final NRRB Presentation to EPA and IDEQ	0	0	01OCT08	
4935	Conduct NRRB Meeting	66	66	02OCT08	13JAN09
4940	Receive NRRB Recommendation	33	33	14JAN09	27FEB09
Proposed Plan					
4945	Develop Draft Proposed Plan	88	88	02SEP08	13JAN09
4950	Submit Draft Proposed Plan to EPA and IDEQ	0	0	13JAN09	
4955	EPA and IDEQ Review Draft Proposed Plan	22	22	14JAN09	12FEB09
4960	Incorporate EPA and IDEQ Comments	22	22	13FEB09	16MAR09
4965	Submit Final Proposed Plan to EPA and IDEQ	0	0	16MAR09	
4970	Obtain DOE-ID, EPA, and IDEQ Management Approval	22	22	17MAR09	15APR09
4975	Issue Proposed Plan to Public	10	10	16APR09	29APR09
Public Comment Period					
4980	Start Public Comment Period	0	0	29APR09	
4985	30 day Comment Period	22	22	29APR09	28MAY09



Start Date 01JUN00
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Run Date 20DEC00 08:33

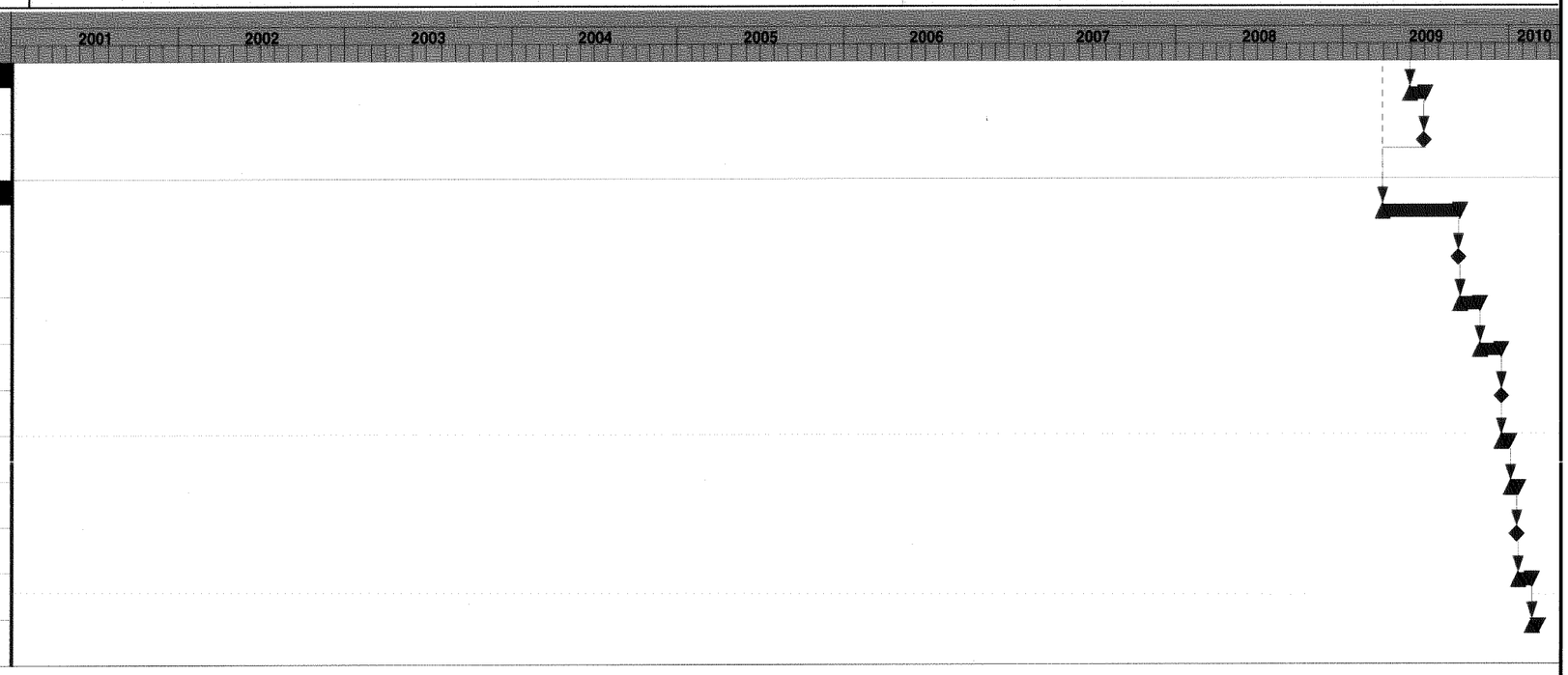
Early Bar
Progress Bar
Critical Activity

Date	Revision	Checked	Approved

WAG 3

OU3-14 RI/FS Tank Farm Work Activities

Activity ID	Activity Description	Orig Dur	Rem Dur	Early Start	Early Finish
Public Comment Period					
4990	30 day Extension to Comment Period	22	22	29MAY09	29JUN09
4995	End Comment Period	0	0	29JUN09	
Record of Decision (ROD)					
5000	Develop Draft ROD	120	120	30MAR09	14SEP09
5005	Submit Draft ROD to EPA and IDEQ	0	0	14SEP09	
5010	EPA and IDEQ Review Draft ROD	33	33	15SEP09	29OCT09
5015	Incorporate EPA and IDEQ Comments	33	33	30OCT09	15DEC09
5020	Submit Draft Final ROD to EPA and IDEQ	0	0	15DEC09	
5025	EPA and IDEQ Review Draft Final ROD	11	11	16DEC09	31DEC09
5030	Incorporate EPA and IDEQ Comments	11	11	04JAN10	18JAN10
5035	Submit Final ROD to EPA and IDEQ	0	0	18JAN10	
5040	Obtain DOE-ID, EPA, and IDEQ Signature	22	22	19JAN10	17FEB10
5045	Publish OU 3-14 ROD	10	10	18FEB10	03MAR10



Start Date	01JUN00
Finish Date	03MAR10
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Critical Activity

Date	Revision	Checked	Approved

7. PROJECT MANAGEMENT PLAN

This section describes the elements of project management for the OU 3-14 RI/FS as follows:

- Key positions and responsibilities
- Organization
- Change control
- Work performance
- Communications.

7.1 Key Positions and Responsibilities

7.1.1 Senior Project Manager

The senior project manager (DOE-ID contractor) is responsible for work planning, authorization, and performance; analysis; reporting; baseline change control; and day-to-day communication with DOE-ID. Responsibilities include:

- Preparing, issuing, reviewing, approving, and maintaining cost accounts that define work scope, scheduled milestones, and a budget that complies with the management control system
- Distributing funds to project managers and work performers for authorized work
- Preparing baseline documents and implementing the management control system, including preparation of a project work breakdown structure and development of control account authorization documents
- Evaluating project performance against the baseline control account plan, presenting variance analysis and corrective action plans, and preparing monthly reports for DOE-ID
- Implementing corrective actions through preparing and approving change documents as required
- Managing subcontracted work
- Guiding the project manager and contributing individuals.

7.1.2 Project Manager

The project manager is responsible to the senior project manager for the detailed planning and performance of work within the assigned work packages. The work package manager also is responsible for the technical quality of the work performed. The project manager is responsible for the following:

- Negotiating with the senior project manager about project scope, schedule, and budget

- Managing scope, schedule, and budget for work performed by organizations within BBWI
- Supporting the senior project manager in integrating schedules and resources in assigned control accounts
- Reporting project status weekly and monthly
- Maintaining proper change and revision control of assigned control account
- Implementing corrective actions, where required.

If a senior project manager has not been defined, the project manager assumes the duties of the senior project manager. When the project is too small to warrant a senior project manager, the project manager will assume those duties. When the project is too small to warrant a control account manager, the project manager will assume those duties.

7.1.3 Control Account Manager

The control account manager is responsible to the summary account manager for the detailed planning and performance of work within the assigned control accounts. The control account manager is also responsible for the technical quality of the work. The control account manager is responsible for the following:

- Negotiating with the summary account manager until both agree on scope, schedule, and budget
- Developing control account plans by defining work packages in accordance with scope, schedule, and budget provided on the cost account authorization
- Ensuring that control account plans are developed in compliance with the management control system
- Defining, planning, scheduling, and negotiating supporting work from performing organizations
- Supporting the summary account manager in integrating schedules and resources in assigned cost accounts with other cost account managers
- Providing progress status on the control account plan each month
- Ensuring performance of work planned on the control account plans
- Controlling changes to and revisions of assigned control accounts
- Implementing corrective actions, where required.

7.2 Organization

This section provides an overview of project planning, budgeting, and baselines.

7.2.1 Planning and Budgeting Overview

Planning and budgeting are the processes by which control accounts are developed, reviewed, approved, and authorized. The sum of the approved control account plans becomes the time-phased performance measurement baseline, which is the formal plan against which progress is evaluated. This section describes the parameters for project work, including the project master schedule and the work breakdown structure. From these documents the control account and its associated schedule, budget, and scope of work are defined.

The planning process requires that the full scope of work be planned and scheduled. Once this is done, resources are applied. Fully planned work and applied resources are then compared to the available budget. If the available budget is insufficient for the planned work, either the budget will be increased or the scope of work will be decreased.

A control account authorization is prepared using the project master schedule and the work breakdown structure as guidance. The control account authorization specifies the boundaries of each control account and is used by the senior project manager for planning the work package details. The control account plans and control account authorization are reviewed and approved by the DOE-ID counterpart, the senior project manager, and other appropriate management. Approval of the control account authorization and control account plan constitutes authority to perform work.

7.2.2 Project Baselines

The project baselines, used for evaluating project performance, are established in the project master schedule and work breakdown structure, and are further defined in the control account authorization and cost plan. The various baselines are defined as follows:

The budget baseline for the project is the sum of the approved budgets on the control account authorizations plus undistributed budgets, which are maintained through the change control system.

The schedule baseline consists of the key decision points and major milestones displayed on the project master schedule. Key decision points and major milestones are shown in the control accounts that directly support the milestones. Key milestones are defined by either DOE headquarters or DOE-ID, and major milestones are defined by BBWI.

The scope of baseline or technical baseline is defined in the work breakdown structure and detailed in the total control account authorizations. It is expanded further in design media, operating specifications, and process flow sheets.

The funds baseline is contained in the annual approved funding program plan. The budget authority is a ceiling for costs plus commitments, and the budget outlay is a ceiling for expenditure during each fiscal year.

7.3 Change Control

Operable Unit 3-14 uses the change control process to manage and control changes to the performance measurement baseline, schedule baseline, or scope of work. The change control process applies to all major projects and major system acquisitions and will be implemented in accordance with the latest revision of MCP-23, "Planning and Managing Projects with Grade I Cost and Schedule Controls," and MCP-3543, "Planning and Managing Projects with Grade II Cost and Schedule Controls."

7.4 Work Performance

The work performance measurement process consists of retrieving planning, performance, and cost data, then providing that data to various management levels for timely decision-making and corrective action. The data are used to calculate cost, schedule, and completion variances. Written variance analyses are required on an exception basis (i.e., when variances exceed predetermined thresholds) to identify causes of significant deviations from plans and to identify and implement appropriate corrective actions. The cost and schedule generated at the cost account level are summarized through both the work breakdown structure and the organization structure to provide information concerning each manager's area of responsibility. This information is analyzed by the appropriate manager and then summarized in written reports that document costs, schedule, and technical performance.

7.4.1 Work Performance Measurement

7.4.1.1 Senior Project Manager. The senior project manager is responsible for accomplishing work described in the control account plan.

7.4.1.2 Management Control System Elements. Five key data elements within the management control systems are used to calculate variances that give the senior project manager an indication of the progress toward the goals and objectives stated on the cost account plan. The various performance measurements are defined as follows:

- **Budget Cost for Work Scheduled**—The planned value for work in a control account plan that is scheduled in a given time period
- **Budgeted Cost for Work Performed**—The value of work actually completed during the measurement period. It is equal to the planned value for the work that was finished
- **Actual Cost of Work Scheduled**—The actual accrued costs incurred within a given time period, including labor and material, together with the associated indirect costs
- **Budget at Completion**—The total budget authorized for a control account
- **Estimate Cost at Completion**—An estimate that is the sum of the actual costs to date plus a forecast of the cost to complete the remainder of the work.

The status of the control account is determined monthly using the data elements discussed above.

7.5 Communications

Two types of reports will be prepared by the project manager for this project: routine and event reports.

7.5.1 Routine Reports

Weekly and monthly reports will be issued to the DOE-ID project manager. Reports will contain a summary of work in progress, planned work, problems encountered, results of any change control board or internal change board actions, work stoppages, anticipated schedule variances, work completed, key position changes, status of subcontracts, corrective action plans, audits performed, and earned value reports.

7.5.2 Event Reports

Unusual events may be within the scope of DOE Order 232.1. If such events occur, notifications will comply with this order. Unusual events outside the scope of 232.1 will be reported as follows:

- Minor problems will be reported to the site supervisor and, if necessary, the safety representative.

- Radiological health and safety problems that cannot be corrected onsite will be reported to the site supervisor or the health and safety officer.

- Problems that could stop work for a period of more than one shift, cause a schedule change greater than 2 days, or a budget change greater than $5,000 will be reported to the senior project manager. The senior project manager will report these problems to appropriate cost account, project, or program managers, including DOE-ID.

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